

MONTANA SECOND JUDICIAL DISTRICT COURT  
SILVER BOW COUNTY

GREGORY A. CHRISTIAN, et al., )  
 )  
 Plaintiffs, )  
 )  
 vs. ) No. DV-08-173  
 )  
 BP AMOCO CORPORATION, et al., )  
 ATLANTIC RICHFIELD COMPANY, )  
 et al., )  
 )  
 Defendants. )  
 \_\_\_\_\_ )

DEPOSITION OF JOHN R. KANE, P.G., L.H.G.  
Seattle, Washington  
Tuesday, July 30, 2013

Reported by:  
MARIANNA DONNER  
CSR No. 7504  
JOB No. 304823

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Defendants. )

)

## Videotaped Deposition of

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through 278, taken on behalf of

Defendant Atlantic Richfield Company,

at 2801 Alaskan Way, Suite 300, Seattle,

Washington, beginning at 9:12 a.m.

and ending at 5:57 p.m. on Tuesday,

July 30, 2013, before MARIANNA DONNER,

Certified Shorthand Reporter No. 7504,

Registered Professional Reporter

No. 38410.

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## Also Present:

BROOK YOUNG, Videographer

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1 Seattle, Washington

2 Tuesday, July 30, 2013

3 9:12 a.m. - 5:57 p.m.

4

09:12 5 THE VIDEOGRAPHER: This is the deposition of  
6 John Kane in the matter of Gregory C. Christian, et  
7 al., versus BP Amoco Corporation, et al., cause  
8 number DV-08-173 in the Montana Second Judicial  
9 District Court, Silver Bow County and was noticed by  
09:12 10 Davis, Graham & Stubbs LLP.

11 The time now is approximately 9:12 a.m. on  
12 this 30th day of July 2013. We are convening at  
13 2801 Alaskan Way, Suite Number 300 in Seattle,  
14 Washington.

09:12 15 My name is Brook Young from Buell Realtime  
16 Reporting, LLC, located at 1411 Fourth Avenue,  
17 Suite Number 820, in Seattle, Washington 98101,  
18 working on behalf of Biehl, et al., Certified  
19 Shorthand Reporters, Inc.

09:12 20 Starting on my left, will counsel and all  
21 present please identify themselves for the record.

22 MR. RAUCHWAY: Jon Rauchway, Davis, Graham &  
23 Stubbs, Denver, Colorado, for the defendants.

24 MR. KOVACICH: Mark Kovacich on behalf of the  
09:12 25 plaintiff.

1 MR. STALPES: Justin Stalpes here for the  
2 plaintiffs.

3 MR. JOHNSON: Ross Johnson here for the  
4 plaintiffs.

09:12 5 THE VIDEOGRAPHER: And would parties on the  
6 phone please identify themselves.

7 MR. THIESZEN: Mark Thieszen at Poore, Roth &  
8 Robinson for the defendants.

9 THE VIDEOGRAPHER: The court reporter may now  
09:13 10 swear in the witness.

11 (Witness sworn.)

12 THE WITNESS: I do.

13

14 JOHN R. KANE, P.G., L.H.G.,

15 having been first duly sworn,

16 was examined and testified as follows:

17

18 EXAMINATION

19 BY MR. RAUCHWAY:

09:13 20 Q Good morning, Mr. Kane.

21 A Good morning.

22 Q I'm Jon Rauchway and I'll be taking your  
23 deposition today.

24 You understand that you just took an oath to  
09:13 25 tell the truth?

1 A I do.

2 Q And will you tell the truth today?

3 A I will.

4 Q I understand that you have had your  
09:13 5 deposition taken before today in other matters?

6 A Yes, I have.

7 Q How many times?

8 A I count five times.

9 Q All right. Have you given sworn testimony  
09:13 10 in any other form other than those five depositions?

11 A No, that would be it.

12 Q You've never testified at trial, for  
13 example?

14 A That's correct. Never in trial.

09:13 15 Q All right. Can you tell me about those five  
16 times that you were deposed before today?

17 A Yes. The first time was for a deposition  
18 regarding a case with -- or against Chevron for a  
19 contaminated property in Seattle where I was a  
09:14 20 geologist who had worked on the site and Chevron had  
21 a former gas station that had impacted the property.  
22 That actually was a deposition that occurred twice.

23 Q Are you counting that as one or two of your  
24 five?

09:14 25 A Two.

1 Q All right.

2 A Other deposition was regarding a  
3 contaminated site south of Seattle, Normandy Park,  
4 Washington, a dry cleaning site that had impacted my  
09:14 5 client's property. And I was representing the  
6 plaintiff who had been impacted by the current dry  
7 cleaner on that property.

8 Q Okay. What else?

9 A The site in Spokane, Washington, I was  
09:15 10 trying to recall, it wasn't actually a formal  
11 deposition so I would have to take that away from the  
12 number five, but it was a couple meetings I had with  
13 the property owner who was doing a cost recovery from  
14 a previous operations on the property. But actually  
09:16 15 wasn't a formal deposition, it was a meeting, so --

16 Q Okay. And that related to a CERCLA cost  
17 recovery action?

18 A That was a MTCA cost recovery action,  
19 Washington State and Spokane.

09:16 20 Q Okay. And I think you said something about  
21 that being number five, but on my list I was up to  
22 four. Is there one more?

23 A I'm recalling the fifth one.

24 Another Chevron site where it was a gas  
09:16 25 station in Seattle. I was representing the owner of

1 the property who had a case against Chevron for a  
2 cleanup under MTCA in Seattle. That was the fifth  
3 one.

4 Q Okay. So you've been deposed on four  
09:17 5 occasions previous to today and two of them related  
6 to the same case. Is that fair?

7 A Correct.

8 Q All right. And were you deposed as a  
9 retained expert on each of those occasions?

09:17 10 A I was except for the one with Chevron on the  
11 property located in Stoneway. I wasn't the expert.  
12 I was called in to testify as a professional  
13 geologist who had done work on the property. And I  
14 was a part owner of that property, too, that was  
09:17 15 contaminated.

16 Q Okay. For the case involving the dry  
17 cleaning site in Normandy Park --

18 A Uh-huh.

19 Q -- were you retained by the plaintiffs in  
09:18 20 that case?

21 A Yes, I was, by the property owner.

22 Q And for the last case that you mentioned  
23 concerning the gas station in MTCA case, were you  
24 retained by the plaintiff in that case?

09:18 25 A Yes, the property owner there, too.

1 Q And in the first case against Chevron, you  
2 were called by the plaintiff, right?

3 A Well, in that case, I was representing the  
4 LLC who had the ownership but I had a portion  
09:18 5 ownership of that LLC. So I would be the plaintiff  
6 still.

7 Q So you were the plaintiff?

8 A I was the plaintiff, yeah. Yeah. So both  
9 actually in that case.

09:18 10 Q Did that case, the case against Chevron, the  
11 one where you were part owner of the property, did  
12 that involve residential property?

13 A It was commercial manufacturing property.

14 Q So no?

09:19 15 A No residential, other than it being an  
16 apartment building where the Chevron was located. So  
17 not homes but certainly the -- one -- there were some  
18 people living in that building.

19 Q The property that you were part owner of  
09:19 20 that was the subject of the suit, was that  
21 residential property or commercial property or both?

22 A That was commercial property.

23 Q Okay. Did the allegations involve  
24 contamination that was sourced in some degree from  
09:19 25 property that was, in part, residential?

1 A Correct.

2 Q And the Normandy Park case, did that involve  
3 residential property?

4 A That was a strip mall, actually two strip  
09:19 5 malls, so that was commercial.

6 Q And how about the gas station case, the MTCA  
7 suit?

8 A That one was a -- was a commercial site with  
9 residential property surrounding it.

09:20 10 Q Was the subject of the lawsuit, the  
11 contaminated property in question, residential or  
12 commercial?

13 A Commercial.

14 Q So you have never testified as an expert or  
09:20 15 in any capacity concerning the contamination of  
16 residential property. Is that fair?

17 A I would say that is accurate. There has  
18 been property that I worked on have been commercial  
19 properties. There have been, however, residences  
09:20 20 that were adjacent to the property.

21 Q But those weren't the subject of the claims  
22 in the case?

23 A They were not the subject of the claim in  
24 the case, but in the one case, in the Normandy Park,  
09:21 25 there was contamination on the residential property



1 where we had to determine the characterization of the  
2 contamination. So they were impacted, although not  
3 plaintiffs in the case, but they were impacted.

4 Q You authored two reports in this case?

09:21 5 A Yes.

6 Q That was a principal report and a shorter  
7 rebuttal report?

8 A Yes.

9 Q Did you author any other reports in this  
09:21 10 case?

11 A No, I did not.

12 Q How about anything like an affidavit or some  
13 kind of formal writeup that was not a draft of either  
14 of those two reports? Did you write anything like  
09:22 15 that in this case?

16 A Could you explain what you mean by  
17 "affidavit"?

18 Q Sure.

19 Affidavit is sworn testimony in written form  
09:22 20 where you -- instead of taking -- having a deposition  
21 like we're doing now you just state the facts and  
22 then sign your name to them and swear to them.

23 A No. The only thing that I've written that  
24 I've signed were those two reports that I already  
09:22 25 discussed.

1           Q    I'm sure it won't surprise you I have some  
2           questions about those reports, so I'll give you  
3           copies of them. I'm not going to mark these but make  
4           sure I give you the right ones.

09:23 5           All right. I've handed you two documents  
6           that I believe are your expert reports from this  
7           case. Can you confirm that those appear to be  
8           complete and accurate copies?

9           It looks like I might have given you  
09:23 10          something extra there. We'll get to that one later.

11          A    Sure.

12          Q    Thanks.

13          A    From my scan here it does appear to be the  
14          two reports I wrote, yes.

09:23 15          Q    And did anyone assist you in writing either  
16          of those two reports?

17          A    No. I wrote these on my own.

18          Q    And did you do all of the analysis on your  
19          own as well?

09:23 20          A    I did not do the maps. When I say I wrote  
21          it, I did the writing. But the maps that were done  
22          were done by a subcontractor I retained, who is a GIS  
23          expert. And actually the bore logs were done by  
24          staff at my office.

09:24 25          Q    Okay.

1           A    Supporting documentation, the statistical  
2           analysis was also done by a subcontractor I retained  
3           to do that for us.

4           Q    When you say "the statistical analysis,"  
09:24 5           what are you referring to?

6           A    Well, I mean this one where we developed the  
7           mean and the median for the soil and groundwater  
8           samples. So it would be the soil data summaries and  
9           the groundwater data summaries.

09:24 10          Q    Other than those items that you just  
11          mentioned, are those two reports your work?

12          A    Yes, they are.

13          Q    Did you physically type up those reports  
14          yourself?

09:25 15          A    I did, yes.

16          Q    And who is the subcontractor that you  
17          retained to do the statistical analyses?

18          A    Name Tamara Cardoso, C-a-r-d-o-s-o.

19          Q    And when you say subcontract, she's someone  
09:25 20          who is not a part of Kane Environmental?

21          A    That's correct, yeah.

22          Q    What is the name of her company, if there is  
23          one?

24          A    Terra Stat, T-e-r-r-a, S-t-a-t.

09:25 25          Q    Can you turn to your resume there at the

1 back of your first report, please.

2 Are you there?

3 A Yes.

4 Q You have a list of items under the heading  
09:26 5 "Key Projects."

6 Do you see that?

7 A Yes.

8 Q First let me ask you, did you type up this  
9 resume yourself?

09:26 10 A Yes, I did, although I believe my secretary  
11 helped format it.

12 Q How many of those key projects were  
13 performed by Kane Environmental?

14 A I count ten.

09:27 15 Q Can you identify those for me, please?

16 A The second bulleted one, that was the  
17 Spokane project I spoke about as being expert witness  
18 where I was retained as expert witness but we never  
19 got to deposition but we had two or three meetings.

09:28 20 Q Okay.

21 A Yeah. Expert witness for a dry cleaner in a  
22 place called Shoreline. I didn't mention that as  
23 being called as an expert because I haven't actually  
24 had depositions yet. Those are going to be happening  
09:28 25 sometime we believe this fall, so that's another

1 site. But that's a commercial site where there was a  
2 dry cleaner release and I'm representing the owner of  
3 the property as an expert.

4 Q And that's the bullet point immediately  
09:28 5 after the Spokane, Washington one?

6 A Yes. That would be the third bullet point.

7 Q Okay. And I believe you said the  
8 contaminated property in that case is also a  
9 commercial property?

09:29 10 A Yes, I said that, yeah.

11 On page 2 on the left column, the third  
12 bullet down, that's a Kane Environmental project.

13 The first bullet on the right side on  
14 page 2, that's a project here in Seattle.

09:29 15 Q The underground storage tanks one?

16 A Underground tank, stained surface area, the  
17 above-ground storage tank, yes.

18 Q Right.

19 A One right below that, that's a site right  
09:30 20 here in Seattle.

21 The one below that, site in Tacoma. So it  
22 would be the last bullet on page 2, second column.

23 Third page, the left column, the first  
24 bullet, that's a Kane Environmental project.

09:30 25 The one below that in Napa, California is a

1 Kane Environmental project.

2 The one below that is Kane Environmental,  
3 and then the last one's Kane Environmental.

4 Q How many employees does Kane Environmental  
09:31 5 have?

6 A 11 including myself.

7 Q Is it a corporation?

8 A It's an S corporation, Washington State.

9 Q Are you the sole shareholder of that  
09:31 10 corporation?

11 A My wife and I.

12 Q Is she also an employee of Kane  
13 Environmental?

14 A She is not.

09:31 15 Q Are there any other environmental  
16 professionals employed by Kane Environmental other  
17 than yourself or are they essentially your staff?

18 A Could you explain your question?

19 Q Sure. It was an imprecise one.

09:32 20 What I'm getting at is are all of these  
21 people in a support role to you or are there other  
22 principals of the company that lead projects on their  
23 own?

24 A I have a director of my office in Portland,  
09:32 25 Oregon, who is a senior-level geologist, engineering

1 geologist, with over 25 years' experience. I have  
2 another senior-level environmental engineer,  
3 environmental scientist, in my office in Seattle.  
4 And the remainder of them are staff to mid-level  
09:32 5 geologists or environmental engineers.

6 Q How many offices does Kane Environmental  
7 have?

8 A We have an office, corporate office in  
9 Seattle, Washington, an office in Portland, Oregon  
09:33 10 and a what I call a project or contract office in  
11 San Francisco.

12 Q I'm looking at your education here. Looks  
13 like you got your undergraduate degree in 1979 from  
14 Hobart; is that correct?

09:33 15 A That's correct.

16 Q What is a geoscience degree?

17 A That's what Hobart called it instead of  
18 geology. My understanding is they were stressing  
19 that it was not just geological sciences but other  
09:33 20 sciences that might include biology, physics,  
21 chemistry. An overall geoscience degree. So that's  
22 their terminology, not mine.

23 Q Can you tell me what your employment history  
24 has been since graduating from Hobart in 1979?

09:34 25 A My first job was working as a geologist for

1 an engineering firm in Seattle in 1979 called Gibson  
2 Frundt & Company. That's no longer in business.  
3 G-i-b-s-o-n and Frundt is F-r-u-n-d-t. I worked for  
4 them for approximately one to two years and then  
09:34 5 started my own sole proprietorship as a geologist  
6 working on different contracts; for example, I worked  
7 for the Department of Natural Resources for the State  
8 of Washington doing a geothermal mapping study for  
9 the state, doing fieldwork, actually collecting  
09:35 10 measurements in wells around the state.

11 I then worked in the mining industry for a  
12 period of time where I did some research work for the  
13 U.S. Bureau of Mines in the Tuolumne Valley in  
14 California as part of the Wild and Scenic River  
09:35 15 Status that was being evaluated at the time for the  
16 Tuolumne River Valley. That's near Yosemite.

17 Q When you said you were working in the mining  
18 industry, were you still a contract geologist or did  
19 you have a new employer?

09:35 20 A I was working for the Bureau of Mines as a  
21 contract employee is what I recall, not as an  
22 employee of the federal government.

23 Q Okay.

24 A That's what I recall.

09:36 25 Q You said you had a sole proprietorship. Did



1 that have a name, that business?

2 A I don't remember.

3 Q Okay. Please continue.

4 A Uh-huh. Then I worked for a short period of  
09:36 5 time for a research and -- well, not research, for  
6 doing investigation of gold and silver mines in  
7 Arizona for a prospective investor group based out of  
8 San Francisco. At that point, I returned to Seattle  
9 and decided to go to graduate school, so for a short  
09:36 10 period of time I worked frankly just odd jobs going  
11 back to graduate school.

12 Then after a year or two I got a more steady  
13 employment with the University of Washington in their  
14 quaternary research group doing some of the what we  
09:37 15 now call the early greenhouse gas research that was  
16 being done at that time.

17 Q Was this while you were getting your MBA or  
18 is this before?

19 A During the MBA. So MBA was night school.

09:37 20 After receiving the Master's of Business  
21 Administration, I actually worked in the computer  
22 industry for a short period of time, for  
23 approximately two years, year and a half even.

24 Q And who did you work for? Sorry.

09:37 25 A For -- sorry. Airborne Express here in

1 Seattle and before that Honeywell.

2 And then I -- in the approximate summer of  
3 1987, I was employed by a company called PTI  
4 Environmental Services as a field geologist, so I got  
09:38 5 back into the geology business. I worked for PTI for  
6 approximately three years.

7 Then in 1990 started working for SAIC,  
8 Science Applications International Corporation, for  
9 approximately five years as a geologist.

09:38 10 I then was employed by -- left SAIC and  
11 employed by Environmental Partners, Incorporated,  
12 EPI, here in the Seattle area, continuing my work as  
13 a geologist.

14 And then I started Kane Environmental in  
09:39 15 2000 and have been employed there since.

16 Q Did you have a specific concentration when  
17 you pursued and obtained your MBA?

18 A That MBA was a general MBA for people  
19 interested in starting their own small business.  
09:39 20 Didn't have a specific what would you call -- I'm  
21 trying to recall what you would -- it wasn't like --  
22 it wasn't an MBA in finance, something like that. It  
23 was more of a broader Master's of Business covering  
24 all of the aspects of business, operations and  
09:40 25 marketing and finance and accounting and -- so broad

1 based.

2 Q How did it come about that you went to work  
3 for PTI in 1987 or so?

4 A Honeywell owned Tetra Tech in the early '80s  
09:40 5 and at that time when I was working for Honeywell, I  
6 was interested in getting back into the environ- --  
7 not environmental, just to work as a geologist. And  
8 I went and talked to the principal at the office in  
9 Tetra Tech in Bellevue at the time and I just kept in  
09:40 10 touch with them. By doing that, I heard that they --  
11 a group of them had splintered off and started PTI,  
12 and I called them and expressed my interest in being  
13 a field geologist, and I was hired.

14 Q Who hired you at PTI?

09:41 15 A Gary Bingham, B-i-n-g-h-a-m, and Mark  
16 Lorenzen was the president.

17 Q Did you work for Mark Johns while were you  
18 at PTI?

19 A I did work with Mark, yes.

09:41 20 Q Was he above you in the chain of command or  
21 the same position essentially?

22 A No. He was above me. He was a project  
23 manager. I was a field geologist.

24 Q Where did you live when you worked for PTI?

09:41 25 A In Seattle.

1           Q   Looking back at your resume, you refer to  
2           some work on the EE/CA and the RIFS at the Smelter  
3           Hill Superfund sites in Montana.

4                   Do you see that reference?

09:42 5           A   I do.

6           Q   Is that your work for PTI there?

7           A   Yes, it is.

8           Q   Is there anything else on your resume that's  
9           PTI work or is it just that one bullet point?

09:42 10          A   That's the only one with PTI.

11          Q   And within that bullet point, and there's a  
12          reference to "Over 2,000 environmental samples were  
13          collected."

14                   Do you see that passage?

09:42 15          A   I do.

16          Q   Was that your role, to collect samples?

17          A   I participated in that collection of the  
18          sampling, yes.

19          Q   Did you have any other role while at PTI or  
09:43 20          was it primarily sampling related?

21          A   Sampling related as a field geologist and I  
22          did some marketing.

23          Q   What do you mean by "marketing"?

24          A   Sales.

09:43 25          Q   In trying to pitch for new projects?

1 A New projects, new clients, yeah.

2 Q What did you do at SAIC?

3 A I started out as a geologist working on a  
4 technical oversight role. The contract SAIC had was  
09:44 5 with EPA and we provided oversight of other  
6 contractors' work at Superfund sites in the  
7 Northwest.

8 Q And I meant to ask you with respect to your  
9 work at PTI --

09:44 10 A Uh-huh.

11 Q -- were any of those samples taken from  
12 residential properties?

13 A I recall they were some of them.

14 Q Do you recall which areas?

09:44 15 A I believe Teresa Ann Terrace might have been  
16 one of the areas. The Old Works area and Smelter  
17 Hill.

18 Q Were you involved in obtaining access  
19 agreements from residents and actually going on to  
09:45 20 residential properties to collect samples?

21 A I recall going on to the properties to  
22 collect samples. I was not the one that contacted  
23 the owners and -- for access.

24 Q Did you have any role in formulating the  
09:45 25 sampling protocol?

1           A    I recall discussions about it, but the  
2 project manager would have been the one to make the  
3 final call.

4           Q    And what do you recall in the way of  
09:45 5 discussions about sampling protocol?

6           A    I can't recall specifically what we talked  
7 about.

8           Q    When you went on to a residential property  
9 to take a sample, was it predetermined where you  
09:46 10 would take that sample or did you have some  
11 discretion once you got there?

12          A    I don't recall.

13          Q    Was it part of your job to inform the  
14 homeowners of the results of the sampling?

09:46 15          A    I don't recall that. I would assume not,  
16 however, since I wasn't the project manager.

17          Q    Well, how about working on the letters or  
18 the summaries of the data and things like that that  
19 were sent to the landowners?

09:46 20          A    That's certainly possible, yes.

21          Q    Okay. You were telling me a little bit  
22 about your work at SAIC and, as I understand it, you  
23 were overseeing the work of other contractors at  
24 Superfund sites?

09:47 25          A    That's what I started doing. And then after

1 a year or two, I started working on the Navy CLEAN  
2 projects where we were doing investigations of the  
3 Superfund sites, and particularly I spent time at  
4 Naval Air Station Whidbey Island.

09:47 5 Q Was it predominantly government work that  
6 you did while you were at SAIC, government contracts?

7 A Predominantly government. By the time the  
8 last year I was there, I was doing some more  
9 commercial work. But the CLEAN program was an EPA  
09:48 10 program.

11 I beg your pardon. I misspoke there. We  
12 were working for the Navy. The CLEAN program was for  
13 the U.S. Navy, with EPA oversight.

14 Q And you said you started to do some more  
09:48 15 commercial work towards the back end of your tenure  
16 at SAIC?

17 A Uh-huh, yes.

18 Q And what did that consist of?

19 A Doing some work with banks in the Northwest.

09:48 20 Q What kind of work was that?

21 A Reviewing -- third-party reviews, reviewing  
22 other consultants' work. I assisted Key Bank in  
23 developing their environmental policy and procedures,  
24 more miscellaneous work like that.

09:49 25 Q You were assisting banks to do their

1 environmental due diligence before they decided to  
2 loan money for a property purchase? Is that what you  
3 were doing?

4 A That's accurate. I was in that industry I  
09:49 5 guess you could call it, yeah.

6 Q Were those predominantly for commercial  
7 properties?

8 A At that time, yes, they were commercial  
9 properties. That's what I recall.

09:49 10 Q How did you come to leave SAIC and go to  
11 work for Environmental Partners?

12 A The CLEAN program was wrapping up due to a  
13 lack of funding and also completing the work. I was  
14 moving from the remedial investigation phase more  
09:50 15 into actual implementation and cleanup. SAIC didn't  
16 have that contract and the office was losing a lot of  
17 employees, so I started looking for other work.

18 Q Did you move over to Environmental Partners  
19 with a group or did you go essentially by yourself?

09:50 20 A By myself.

21 Q And what kind of work did you do at  
22 Environmental Partners?

23 A Due diligence work, working for property  
24 owners or people interested in purchasing property,  
09:50 25 variety of different properties. We also worked for



1 a large utility company on the East Coast. We worked  
2 for some manufacturing industrial companies, a  
3 variety of developers who were building either  
4 commercial or large residential structures.

09:50 5 Q And I believe you said in 2000 you formed  
6 your own company Kane Environmental?

7 A I did.

8 Q And has the character of your work changed  
9 since you started Kane Environmental from what you  
09:51 10 were doing at Environmental Partners?

11 A Similar work, more remediation, more  
12 Brownfields work than I did at EPI. We do maritime  
13 industry, which I didn't do at EPI. We do spill  
14 prevention plans, storm water pollution prevention  
09:51 15 plans, which I never did at EPI. So similar work but  
16 expanded the scope with Kane Environmental.

17 Q You have a reference on page 1 of your  
18 report to similar work you've done for private  
19 property locations.

09:52 20 Do you see that reference?

21 A Yes, "Associated with the former smelter  
22 located in North Everett."

23 Q Okay. If you look back into your resume,  
24 does that reference in your report refer to the last  
09:52 25 bullet point on page 1 of your resume with respect to

1 the smelter in Everett?

2 A That would be the fourth bullet on the first  
3 page?

4 Q Yes.

09:53 5 A Yes, that's that.

6 Q Okay. And there's also a reference on -- in  
7 your report just on page 2 to the ASARCO smelter in  
8 Tacoma?

9 A Yes.

09:53 10 Q And is that the same work that's described  
11 in the last bullet point on page 2 of your resume?

12 A Yes.

13 Q The Everett, Washington smelter site, that  
14 was not a Kane Environmental project, right?

09:53 15 A That was with SAIC.

16 Q What did you do there?

17 A I did the field sampling in the residential  
18 yards in this area of North Everett where a former  
19 smelter had been located a number of years ago, and I  
09:54 20 acted as a project manager at the same time as doing  
21 the fieldwork.

22 Q Was it your job to come up with the field  
23 sampling method as well as actually taking the  
24 samples?

09:54 25 A Yes.

1           Q    And your resume refers to over 350 samples  
2           to characterize arsenic and lead contamination in a  
3           residential area.

4           A    Uh-huh.

09:54 5           Q    Do you see that?

6           A    Yes, I do.

7           Q    How many properties did that involve?

8           A    I don't recall the exact number, but I  
9           believe it's in the range of 25.

09:55 10          Q    And are those 25 residential properties or  
11          is that a mix of types of properties?

12          A    That was all residential.  Single family  
13          homes and small apartments.

14          Q    So was that about 12 to 14 samples per  
09:55 15          residential property?

16          A    I don't recall the exact number in that --  
17          the sampling.  I do remember taking samples at depth  
18          near surface going down a few feet at each location.

19          Q    Did you take samples from different  
09:55 20          locations at each discrete property?

21          A    I don't recall.

22          Q    Well, when you say 350 samples, and it was  
23          about 25 properties, does that lead you to believe it  
24          was more than one sample per property?

09:56 25          A    Yes.  It would be more than one sample per

1 property and I already stated that some of the  
2 locations were vertical samples taken, multiple  
3 samples at one location. I do remember that.

4 Q So are you counting in your 350 there  
09:56 5 different samples of -- from the boring column, so to  
6 speak?

7 A Yes.

8 Q What was your role as project manager? What  
9 did you do?

09:56 10 A In that case I did contact residents for  
11 access to their property. I did supervise the work  
12 of a couple of other people assisting me. I attended  
13 public meetings on behalf of the company. I --  
14 writing reports, memorandums regarding the site to  
09:57 15 the client, conversations with the client who was the  
16 Department of Ecology, meeting them at the site and  
17 going over the scope of work, discussing the reports,  
18 various things like that.

19 Q Did you come up with the remedy for that  
09:57 20 site?

21 A I did not. And the reason is that it was  
22 transferred back to the former owner, which was  
23 ASARCO. And at some point after our initial  
24 investigation, ASARCO took over the project and did  
09:58 25 the cleanup and rebuilt all of the homes that are

1       presently there now, so it did the demolition of the  
2       old homes and built new homes for the residents.

3           Q     And were you involved in that project after  
4       it got transferred back to ASARCO?

09:58 5           A     No.

6           Q     So what stage was the project in when your  
7       involvement ended?

8           A     Remedial investigation stage.

9           Q     Had you begun to evaluate the feasibility of  
09:58 10       potential alternatives?

11          A     I don't recall doing that.

12          Q     Was this sometime in the early '90s?

13          A     Yes.

14          Q     Can you put a more precise date on it than  
09:59 15       that?

16          A     Somewhere around 1992, plus or minus a year.

17          Q     And how long was your involvement with that  
18       site?

19          A     Six months to a year.

09:59 20          Q     Do you know what the ultimate remedy was at  
21       that site?

22          A     I mentioned before, just a few minutes ago,  
23       was a soil excavation replacement with clean fill and  
24       demolition of homes, soil excavation, replacement  
10:00 25       with clean fill and rebuilding new homes.

1 Q Were all of the 25 or so homes demolished?

2 A That's my understanding, yes.

3 Q Do you know how much soil was excavated?

4 A I don't.

10:00 5 Q Do you know where the excavated soil was  
6 taken?

7 A No, I don't.

8 Q When did you work on the Tacoma site?

9 A Which Tacoma site do you mean?

10:01 10 Q The smelter site.

11 A The residential property you are referring  
12 to?

13 Q I'm referring to the last bullet point on  
14 page 2 of your resume.

10:01 15 A 2007, I believe.

16 Q And moving over to page 3 of your resume,  
17 the bullet point continues over there --

18 A Uh-huh.

19 Q -- and you have a reference to Property with  
10:02 20 a capital P. Do you see that?

21 A Yes.

22 Q Did that involve the cleanup of a single  
23 property?

24 A Yes, it was a single property, uh-huh.

10:02 25 Q What kind of property was that?

1 A A residential property.

2 Q Was it an apartment building or single  
3 family home?

4 A I recall it as a single family residence.

10:02 5 Q And it says on your resume that you were the  
6 project manager for that remedial investigation; is  
7 that right?

8 A That's correct.

9 Q So what did you do in that capacity?

10:02 10 A I had an employee go to the site, collect  
11 samples, talked with the employee about where to  
12 sample, the frequency of sampling, working for the --  
13 doing the project management and contact with the  
14 property owner for access, describing the results to  
10:03 15 the property owner, writing the reports with  
16 assistance from my employee.

17 Q Did you come up with a sampling protocol for  
18 that single property?

19 A Yes. We did a grid sampling where we  
10:03 20 sampled surface soil and soil to depth to  
21 approximately three feet, ran the samples for the  
22 metals.

23 Q What do you mean by "grid sampling"?

24 A Called out rectangle sampling every ten  
10:04 25 feet.

1 Q So you took a different sample in each  
2 ten-foot-square quadrant of the property?

3 A Well, I took a sample -- surface soil sample  
4 and then likely a sample at one foot, two feet, three  
10:04 5 feet at each location to then come up with a volume  
6 estimate in case we did have exceedances of the  
7 metals.

8 Q When you say "at each location," was each  
9 location within a different ten-foot-square area of  
10:04 10 the property?

11 A It was a large rectangle, so the four  
12 corners of that rectangle and then within ten feet of  
13 one another.

14 Q Were you working for the Department of  
10:05 15 Ecology at that site or for the developer?

16 A That was a Kane Environmental project. We  
17 were working for the property owner at the time.

18 Q And was the property owner trying to develop  
19 that property into some other use?

10:05 20 A That's my understanding, yes.

21 Q Do you know what the use was?

22 A Additional residential is my understanding.

23 Q Were you involved in the selection of the  
24 remedy for that property?

10:05 25 A I was, yes.



1 Q And what was the remedy?

2 A Excavation, removal and disposal of the soil  
3 into the landfill.

4 Q How much of the soil was removed at that  
10:05 5 property?

6 A I recall 3- to 500 yards.

7 Q And was that a uniform removal to a certain  
8 depth or was it only in certain areas?

9 A When we did the excavation, we also include  
10:06 10 confirmation sampling to make sure the metals had  
11 gone below clean-up level. And I recall there were a  
12 couple spots where we had to over-excavate, go a  
13 little bit deeper than some other areas.

14 Q So with the exception of the areas where you  
10:06 15 had to go a little deeper, was it essentially a  
16 uniform removal to a certain depth?

17 A Removal to locations where we knew it was  
18 below the clean-up level.

19 Q So you only removed soils from the areas of  
10:07 20 the property where it exceeded the action level. Is  
21 that what you are saying?

22 A That's correct. Clean-up action level.

23 Q And did the depth that you removed the soil  
24 to vary within that same property according to  
10:07 25 whether it exceeded the action level, let's say,

1 zero to two inches, two to six inches, et cetera?

2 A Like I described, I do recall one area where  
3 we went a little deeper.

4 Q And it was arsenic and lead that were the  
10:07 5 contaminants of concern there?

6 A Yes.

7 Q What was the action level for arsenic?

8 A 20 parts per million.

9 Q How about lead?

10:07 10 A 250 parts per million. Those are the  
11 residential standards for Washington State.

12 Q And where was the soil removed to? You say  
13 a regulated landfill.

14 A Yes.

10:08 15 Q Where is that landfill?

16 A I recall it was sent to the Roosevelt  
17 landfill in Klickitat County in Washington State.

18 Q And where is Klickitat County in relation to  
19 Tacoma?

10:08 20 A South and then west -- excuse me, south and  
21 then east. So it would be east of Vancouver,  
22 Washington.

23 Q And looking back at your resume, you also  
24 mentioned, in that same passage we looked at before,  
10:09 25 that you worked as a field geologist on the Old Works

1 and Smelter Hill sites.

2 Do you see that reference on the end of the  
3 same paragraph?

4 A What page?

10:09 5 Q Page 2.

6 A Page 2. I'm sorry. I don't see what  
7 reference you are looking at.

8 Q End of the first paragraph on page 2 of your  
9 report. I'm looking at your report, not your resume.

10:10 10 A Oh, excuse me. End of page 2 of the report.  
11 Yes, I see that.

12 Q Other than the items in that paragraph that  
13 we have already discussed, is there other work that  
14 you have performed in the past that you would also  
10:10 15 characterize as similar work to that which you  
16 performed in this case?

17 MR. KOVACICH: Objection; that's vague.

18 You can go ahead and answer.

19 THE WITNESS: There have been sites where I  
10:10 20 worked on -- in Tacoma where we've had to evaluate  
21 arsenic and lead contamination from the smelter and  
22 found actually that they were clean.

23 BY MR. RAUCHWAY:

24 Q Were those residential properties?

10:11 25 A They were, yeah.

1           Also doing some work for the University of  
2           Washington in that area of Tacoma looking at  
3           residential properties that were due east of the  
4           former smelter stack where again we found  
10:11 5           concentrations of arsenic and lead, but they were  
6           below clean-up level so no other action was taken at  
7           those properties.

8           Certainly have dealt with contamination of  
9           metals for maritime sites all over Seattle and the  
10:12 10          Northwest that I've worked on.

11           We've had some metals contamination in  
12           sediments at a site in Salmon Bay here in Seattle.  
13           Metals due to industrial processes, chromium, that  
14           kind of thing.

10:12 15          Lead related to gasoline releases either on  
16           commercial or industrial properties or at the gas  
17           stations I described.

18           Checking for lead at residential properties  
19           that may have had underground storage tanks or waste  
10:12 20          oil tanks, make sure that metals contamination is not  
21           an issue at those sites.

22           Did a lead investigation and a cleanup for  
23           Chugach Contracting Company that worked at Naval Air  
24           Station Whidbey Island early in the probably 2001  
10:13 25          timeframe due to battery releases that were at the

1 property on the naval base.

2 Had a site here in Seattle where there was  
3 lead release due to battery releases.

4 We had to deal with contaminated soil due to  
10:13 5 high lead concentrations, investigations of sites  
6 like that.

7 Q Anything else?

8 A That's what I recall right now.

9 Q Other than your work on this one property  
10:14 10 within the Tacoma smelter plume, have you ever  
11 designed the remedy for a residential soil cleanup  
12 prior to this case?

13 A There was a property on -- located on Lake  
14 Washington that had a release of some hydrocarbons.  
10:14 15 I believe also we had a metals issue there. And I  
16 did the cleanup there, that included some soil  
17 removal and treatment of groundwater.

18 A residence in California we worked on in  
19 Napa that had a potential release of some lead and  
10:15 20 arsenic where we were investigating whether -- for  
21 soil removal at that site.

22 That's what I recall right now.

23 Q The property on Lake Washington, was that a  
24 residential property?

10:15 25 A Yes, it was.

1 Q Single family residence?

2 A Yes, it was.

3 Q And did you actually design the cleanup that  
4 took place there?

10:15 5 A I did.

6 Q Is that on your resume here?

7 A It's not.

8 Q When was that?

9 A 2005, 2004 timeframe.

10:16 10 Q And the residence in Napa, was that just  
11 investigation or did you actually design a remedy for  
12 that?

13 A That was an investigation with a proposed  
14 remedy that wasn't implemented.

10:16 15 Q Was not implemented?

16 A Was not implemented.

17 Q Have you now described the full extent of  
18 your experience in remedial design for residential  
19 properties prior to your work on this case?

10:16 20 A From what I can recall right now. There may  
21 be other projects that I've worked on that I'm not  
22 recalling right now.

23 Q You've never before designed an area-wide  
24 remedy for more than one residence for a soil cleanup  
10:17 25 before your work on this case; is that right?

1 A How do you define "area-wide"?

2 Q More than one residence.

3 A For a residential property, I believe that's  
4 true, yes.

10:17 5 Q And if I'm recalling your testimony with  
6 respect to the 25 or so residences in Everett,  
7 Washington, you designed the sampling program for  
8 those residences?

9 A That's what I recall, yes.

10:18 10 Q Is that the only time prior to your work on  
11 this case that you've designed a residential soil  
12 sampling program for more than a single residence?

13 A From what I can recall right now, yes,  
14 that's true.

10:19 15 Q Have you ever designed a sampling program  
16 for groundwater for more than one residence prior to  
17 your work on this case?

18 A From what I can recall right now, yeah. No,  
19 just commercial and individual residences. But  
10:20 20 that's what I can recall right now.

21 Q Okay. I think your answer was a little --  
22 you said yes and no, so I just want to make sure  
23 we're communicating.

24 A Sure.

10:20 25 Q Prior to your work on this case, you've

1 never before designed a multi-residential groundwater  
2 sampling program?

3 A From what I can remember right now, what I  
4 can recall, no.

10:21 5 Q Have you ever designed a residential  
6 groundwater remedy prior to your work on this case?

7 A Yes, I have.

8 Q Can you tell me about your prior experience  
9 designing residential groundwater remedies?

10:21 10 A Yes. I've designed some systems where we've  
11 done remediation based on underground storage tanks  
12 on properties dealing with petroleum release and lead  
13 releases to soil and groundwater, primarily from  
14 heating oil, waste oil tank.

10:21 15 Q Anything else?

16 A For residential properties, that's an  
17 example what I've done, yes.

18 Q And if I'm understanding what you are  
19 saying, you are referring to situations where there's  
10:22 20 an underground storage tank on some kind of  
21 industrial property and it's leaking contaminants  
22 onto residential properties?

23 A No. In this case it would actually be --  
24 what you asked me was actually for residential  
10:22 25 properties and my response was yes, on residential



1 properties we've had releases of underground storage  
2 tanks on the property itself.

3 Q Okay. So these are underground storage  
4 tanks located on residential properties?

10:22 5 A Correct.

6 Q And you are designing groundwater  
7 remediations to alleviate that condition?

8 A Yes.

9 Q And have those always been single  
10:22 10 properties?

11 A From what I can recall right now, they are  
12 single properties.

13 Q And how many occasions have you done this?

14 A I can recall four or five right now.

10:23 15 Q Are these septic tanks?

16 A No. They would be underground storage  
17 tanks.

18 Q So some kind of petroleum product for home  
19 use, propane or something?

10:24 20 A Fuel oil or heating oil.

21 Q And what has the remedy been in these four  
22 or five instances that you designed?

23 A For groundwater you are asking?

24 Q Yes.

10:24 25 A Either application of bioventing, which is

1 just putting a well in and letting natural air  
2 evacuate. Adding some remediation product to enhance  
3 the degradation of the petroleum products, a variety  
4 of different types of that.

10:24 5 Q Any other types of residential groundwater  
6 remedies that you designed prior to this case?

7 A Not that I can recall right now.

8 Q You've never designed an area-wide  
9 residential groundwater remedy prior to your work on  
10:25 10 this case?

11 MR. KOVACICH: Objection; vague.

12 THE WITNESS: Just be clear. You mean by  
13 "area-wide" being more than one residence?

14 BY MR. RAUCHWAY:

10:25 15 Q Yes.

16 A Not that I can recall right now.

17 Q And you've never designed a residential  
18 groundwater remedy related to historical mining or  
19 smelting impacts prior to your work on this case;  
10:26 20 isn't that right?

21 A Well, I did do a soil removal of the  
22 residence in Tacoma based on a former smelter  
23 activity, so I do have some experience with that.

24 Q My question was a groundwater remedy.

10:26 25 A Oh, for groundwater, I don't recall doing

1 that, no.

2 Q You describe here in your resume, and we've  
3 discussed a few instances, where you've been retained  
4 by a regulatory agency; is that right?

10:27 5 A As Kane Environmental or previous work  
6 experience are you asking me?

7 Q Either.

8 A Either.

9 Q Well, for instance, you've worked for the  
10:27 10 Washington State Department of Ecology on a few  
11 instances, right?

12 A With SAIC, my former employer, yes.

13 Q Have you ever -- has Kane Environmental ever  
14 been retained by a regulatory agency?

10:27 15 A Yes.

16 Q Which agency?

17 A Department of Ecology, Washington State.

18 Q And when you've done work for an agency,  
19 whether it be Department of Ecology or some other  
10:27 20 one, has the cleanup that you've worked on been  
21 targeted at meeting certain regulatory standards?

22 A Well, I don't recall doing a cleanup for  
23 ecology. We had a monitoring -- groundwater  
24 monitoring program with the Department of Ecology.

10:28 25 Q Whether it be monitoring or sampling or

1 cleanup or some other interim phase, have all of  
2 those activities been related to some kind of  
3 regulatory standard? Do you understand what I'm  
4 asking?

10:28 5 A That's what I'm trying to think. Could you  
6 rephrase it a different way for me?

7 Q Sure.

8 Like, for example, you referred to arsenic  
9 and lead action levels before --

10:28 10 A Uh-huh.

11 Q -- with respect to one of the properties  
12 that you worked on.

13 A Uh-huh.

14 Q Has your work for regulatory agencies  
10:28 15 throughout your career always been geared towards  
16 meeting some kind of regulatory action level for  
17 whatever constituents you are targeting?

18 A For Department of Ecology with the  
19 monitoring program, we were comparing analytical  
10:29 20 results to the state standard for groundwater.

21 Q Now, as I understand it, in your opinion in  
22 this case, you designed a cleanup that was intended  
23 to return the properties to background levels for the  
24 targeted constituents.

10:29 25 Is that accurate?

1           A    Calculated background concentrations,  
2   correct.

3           Q    Have you ever worked on an investigation or  
4   cleanup before your work on this case where the goal  
10:29 5   was to return the property to background levels?

6           A    No.  We have worked on projects where we  
7   took a look at stated background concentrations by  
8   the state to compare concentrations found in soil.  
9   In working in Washington State, we've always used the  
10:30 10   residential standard for metals.

11          Q    So if I understand your response, you've  
12   referred to background levels in the course of your  
13   work, but --

14          A    Yeah.

10:30 15          Q    -- the projects you've worked on you've  
16   never had one where the goal was to return it to the  
17   property to background levels.

18                   Is that accurate?

19          A    That's correct.

10:30 20          Q    Have you ever worked for EPA?

21          A    With SAIC, one of the contracts that had  
22   technical oversight, was an EPA contract.

23          Q    My question was a little vague.

24                   Have you ever been an actual employee of  
10:31 25   EPA?

1 A No, I have not.

2 Q How about any state regulatory agency?

3 A No. The exception of the Department of  
4 Natural Resources I discussed earlier, but I was a  
10:31 5 contractor, not a state employee.

6 Q When were you retained to work on this case?

7 A During the -- what I recall is the winter of  
8 2012; 2011, 2012 timeframe.

9 Q I'm sorry. Did you say the winter of 2011  
10:32 10 or 2012?

11 A Well, the end of 2011, beginning of 2012, so  
12 about a year and a half ago. I don't have the exact  
13 date memorized.

14 Q I'll show you this. I don't think we need  
10:33 15 to mark that either, but I'll identify it for the  
16 record. It's Plaintiffs' Supplemental Responses to  
17 Atlantic Richfield Company's Third Discovery  
18 Requests.

19 And I want to ask you about the part that  
10:33 20 appears -- the chart that appears on the last  
21 physical page of the exhibit, although as with all of  
22 our exhibits today, you are free to look at any part  
23 of it that you want.

24 Do you see that chart there that has  
10:33 25 plaintiffs' expert witnesses on it?

1 A Very last page, yes, I do.

2 Q Right.

3 And focusing on the row for Kane

4 Environmental, it indicates that you have been paid a  
10:34 5 total of \$481,899 and change.

6 Do you see that?

7 A Yes, I do.

8 Q And if you look --

9 Well, these responses are dated July 12th of  
10:34 10 this year. Do you believe that that figure is  
11 accurate as of today?

12 A Yes, I do.

13 Q You haven't been paid any additional money  
14 over that 481,000, that you are aware of?

10:34 15 A As of July of 2013?

16 Q Yes.

17 A Yes, I think that's accurate.

18 Q Does that figure include I'll call them  
19 pass-through expenses for sampling and analysis work  
10:34 20 that you performed on behalf of your client in this  
21 case?

22 A Yes.

23 Q How much of that 481,000 was actually paid  
24 to Kane Environmental for work done by Kane  
10:35 25 Environmental?

1           A    I would say a range of about 100- to  
2           150,000. I don't have the exact number in my mind.

3           Q    In terms of billings, how does this project  
4           compare to other projects that you've done while at  
10:35 5           Kane Environmental?

6           A    Could you be -- could you explain your  
7           question to me?

8           Q    Sure.

9                    I work at a small business, too. I'm asking  
10:36 10           if this is a big matter. If someone said to me you  
11           are going to bill a million dollars in that case, I  
12           would say that's a big case.

13                   So is this a big case for you?

14           A    I have other projects that are more than  
10:36 15           this that I'm working on. It's certainly top five.

16           Q    Thank you.

17           MR. KOVACICH: Take a break, Counsel?

18           MR. RAUCHWAY: Yeah, sure.

19           THE VIDEOGRAPHER: Going off the record. The  
10:36 20           time now is approximately 10:37 a.m.

21                   (Off the record.)

22           THE VIDEOGRAPHER: Going back on the record.  
23           The time now is approximately 10:50 a.m.

24           BY MR. RAUCHWAY:

10:49 25           Q    Okay. Mr. Kane, you propose both a soils



1 and a groundwater remedy for all of plaintiffs'  
2 properties in this case; is that right?

3 A Yes.

4 Q And you propose a uniform remedy for all of  
10:50 5 the properties in the case.

6 Is that fair?

7 A No. Do you mean soil or groundwater?

8 Q Let's start with soil.

9 A Yeah. If you could be more specific,  
10:50 10 please.

11 Q Sure.

12 You propose a uniform remedy for soil  
13 removal for all of the properties in this case?

14 A For soil, yes.

10:50 15 Q And for groundwater you propose multiple  
16 passive reactive barrier walls; is that right?

17 A One large one and then depending on the  
18 location of the other plaintiffs in Crackerville, a  
19 couple of other smaller locations, yes.

10:51 20 Q How many other smaller walls do you  
21 contemplate?

22 A I believe two other than the large one along  
23 Highway 1.

24 Q So three. And I'll call that PRB walls, is  
10:51 25 that acceptable to you?

1 A Sure. Yes.

2 Q You propose, as a groundwater remedy, three  
3 PRB walls for all of the properties in this case; is  
4 that right?

10:51 5 A For the plaintiffs in this case, yes.

6 Q How many properties are you proposing to  
7 remediate in this case?

8 A I believe it's 60 or 61.

9 Q For your soils remedy, as I understand it,  
10:51 10 you are proposing to remove the top two feet of soil;  
11 is that right?

12 A That's correct.

13 Q And replace it with 22 inches of clean fill  
14 and two inches of sod; is that right?

10:52 15 A Not exactly. 22 inches of clean fill, two  
16 inches of a topsoil, roughly two inches, and then a  
17 sod.

18 Q Okay. And that two-foot removal would be  
19 uniformly applied across all of plaintiffs'  
10:52 20 properties in this case; is that right?

21 A That's correct.

22 Q And you propose to transport and dispose of  
23 that two feet of soil to an offsite location, right?

24 A That's correct.

10:52 25 Q And you've estimated that total amount for

1 the soils removal to be about 430,000 cubic yards?

2 A Yes, which translates roughly to 650,000  
3 tons, I believe.

4 Q And as I understand your proposed cleanup,  
10:53 5 you suggest that that 650,000 tons be transported and  
6 disposed of in a landfill in Spokane?

7 A Correct.

8 Q Do you have a particular landfill in Spokane  
9 in mind?

10:53 10 A Owned by Waste Management Corporation.

11 Q Does it have a name?

12 A I just know it as Waste Management Spokane  
13 landfill. It probably has a local name.

14 Q Do you know what the address is?

10:53 15 A I don't have the address memorized.

16 Q Well, because of the world that we live in,  
17 let me see if I can look it up and we can get some  
18 certainty on this.

19 Is it the Waste Management landfill at  
10:54 20 11913 East First Avenue, Spokane, Washington?

21 A I don't have the address memorized.

22 Q Do you know what any of the surrounding  
23 communities are to that landfill?

24 A If I recall, it's north of Spokane and not  
10:55 25 really surrounded by any large communities.

1 Q Have you been to that landfill before?

2 A I have not.

3 Q Have you worked on cleanups where you have  
4 disposed of material at that landfill before?

10:55 5 A I believe we sent some soil to that landfill  
6 from a site I worked on in Moses Lake, Washington,  
7 working with an environmental contractor. I would  
8 have to go and check my records, but I believe he  
9 took some soil to that landfill. That's the only  
10:56 10 time I can recall having actually sent any soil to  
11 that particular landfill.

12 Q How did you select that particular landfill  
13 for the disposal of the soil that you are proposing  
14 in this case?

10:56 15 A I contacted a Waste Management  
16 representative and told them I wanted to know what  
17 their closest landfill would be to the area around  
18 Opportunity. And we talked about one landfill I  
19 believe was located in Colorado, the second one  
10:56 20 located in Oregon just outside of Portland and then  
21 he mentioned the one in Spokane. And that one I  
22 believe is -- well, it was the closest one that they  
23 had to our site.

24 Q It's the closest Waste Management, Inc.  
10:57 25 landfill to Opportunity? Is that what you are

1 saying?

2 A Correct. That's correct, yeah.

3 Q There are other closer landfills that are  
4 not owned by Waste Management, Inc., right?

10:57 5 A Probably, yes.

6 Q Did you consider disposal at other landfills  
7 that aren't owned by Waste Management in the course  
8 of your analysis in this case?

9 A I wanted to be sure that I was sending soil  
10:57 10 to a landfill that could take that large amount of  
11 soil, and in discussing with the Waste Management  
12 contact they didn't have any problem with that  
13 volume. I didn't call any other landfills at that  
14 time.

10:58 15 Q This Waste Management, Inc. landfill in  
16 Spokane is not a hazardous waste landfill, is it?

17 A It's not a hazardous waste landfill like the  
18 one in Oregon that takes hazardous waste, that's  
19 correct, yes. I believe it's subtitle D.

10:58 20 Q Subtitle D you said?

21 A I believe so, yes.

22 Q D list, right?

23 A D list, I believe, yes.

24 Q And the soils that you are proposing to  
10:58 25 transport to Spokane is not D list hazardous waste,

1 is it?

2 A It's soil that's -- excuse me. I'm sorry.

3 It's soil that is above the calculated  
4 background for the Opportunity area, the Crackerville  
10:59 5 area that we calculated from our sampling activity.  
6 I didn't really consider that concern about being  
7 hazardous waste or D listed or anything like that,  
8 just above background.

9 Q Do you believe that the soil that you are  
10:59 10 proposing to transport to Spokane qualifies as D list  
11 hazardous waste?

12 A I didn't really consider that. It's soil  
13 above background. I didn't really think about it as  
14 being any listed or regulated waste.

10:59 15 Q But you are proposing to dispose of it in a  
16 nonhazardous waste landfill, right?

17 A That's true, yes.

18 Q And you couldn't do that if it did qualify  
19 as D list hazardous waste, right?

11:00 20 A That's true. It would have to go to a  
21 different landfill if it was hazardous waste,  
22 correct.

23 Q How far is the Waste Management, Inc.  
24 landfill in Spokane from Opportunity and  
11:00 25 Crackerville?

1           A    I don't know the exact mileage.  It's my  
2 understanding it's a day trip.  The truckers can get  
3 there and back in a day.

4           Q    Have you ever looked it up?

11:00 5           A    The actual mileage, no.

6           Q    It's several hundred miles, right?  Do you  
7 know that?

8           A    That's my understanding, yes.

9           Q    There are risks inherent to transporting  
11:00 10 material that far and for that duration, aren't  
11 there?

12           A    Could you explain your question by "risks"?  
13 What you mean by "risks"?

14           Q    Sure.

11:01 15           Well, there are risks of traffic accidents,  
16 right?

17           A    Yes, that could happen.

18           Q    Have you made an effort to quantify how many  
19 miles or truck miles will be driven to transport this  
11:01 20 650,000 tons of soil the several hundred miles to  
21 Spokane?

22           A    Could you explain what you mean with that  
23 question?

24           Q    Sure.

11:01 25           It's going to be more than one truck doing

1 this, right?

2 A Most definitely, yes.

3 Q Driving back-and-forth several hundred miles  
4 each way to Spokane?

11:01 5 A Yes.

6 Q Full of dirt one way, empty the other way?

7 A Full going there. Coming back I don't know  
8 necessarily empty. Might be able to come back with  
9 clean fill. That's a possibility.

11:02 10 Q And you estimate that this will go on for  
11 somewhere on the order of two years?

12 A Correct. I believe 20 months, yes.

13 Q And do you think there are risks of traffic  
14 accidents for 20 months of back and forth trips from  
11:02 15 Opportunity to Spokane?

16 A I don't know. That would be just  
17 conjecture. It's very possibly it could go the whole  
18 time with no accidents or anything.

19 Q It's possible. But accidents happen, right?

11:02 20 A Sure.

21 Q That's a risk inherent to your proposed  
22 remedy of 20 months of transportation?

23 A That's why they call it accidents, you don't  
24 expect it to happen, but I'm not planning on it.

11:03 25 Q Well, that would include the risk of



1 fatalities, right?

2 A I don't know.

3 Q You don't know?

4 A I don't know.

11:03 5 Q You don't think there's any risk of traffic  
6 fatalities inherent to the remedy that you are  
7 proposing?

8 MR. KOVACICH: Objection. This is just  
9 argument.

11:03 10 THE WITNESS: Didn't consider traffic fatalities  
11 in thinking about transport of the soil.

12 BY MR. RAUCHWAY:

13 Q Did you think about any other risks inherent  
14 to your proposed transportation of this soil from  
11:03 15 Opportunity and Crackerville to Spokane?

16 A I think one thing we want the drivers to  
17 have would have covered loads to make sure that none  
18 of the soil would blow out of the trucks, so that  
19 would be one aspect of the trucking. And that's not  
11:04 20 unusual. Most of the trucks come with covers that  
21 you can get.

22 Q So you considered at least the risk of  
23 spilling some of the dirt from the loads or blowing  
24 in the wind?

11:04 25 A Wind blown.

1 Q Wind blown?

2 A Potentially wind blown, sure.

3 Q And there's also a risk of spilling the dirt  
4 in some other way, right?

11:04 5 A I don't know. What other way do you mean?  
6 Could you explain what you mean by "some other way"?

7 Q Sure. Loading or unloading.

8 A So loading soil from the sites in  
9 Opportunity and then unloading soil at the locations  
11:05 10 in Spokane?

11 Q Sure.

12 A I'm not sure what risks there would really  
13 be there.

14 Q Well, there certainly could be a risk of a  
11:05 15 spill if there was a traffic accident, right?

16 A That's a different question.

17 I don't believe there would be a traffic  
18 accident while loading or unloading, but we already  
19 talked about some possibility that's -- of an  
11:05 20 accident or a truck having an accident. We already  
21 said that.

22 Q Right.

23 A Yeah.

24 Q I was talking about the risks to the drivers  
11:05 25 and other motorists before. Now I'm talking about a

1 pollution risk from the soil that you believe needs  
2 to be removed and transported to Spokane.

3 There's some risk of that if there's a  
4 traffic accident, right? The dirt would be  
11:06 5 spilled -- could be spilled?

6 A If there was a traffic accident and there  
7 was dirt spilled, that could happen, I suppose, yeah.

8 Q And there's also additional pollution  
9 inherent to your proposed transportation, right, from  
11:06 10 all of those trucks for all of those months?

11 A Actually, I don't see a huge issue of  
12 transporting that soil in a truck to a landfill  
13 that's covered as being a big environmental risk with  
14 the exception if there was an accident.

11:06 15 Q What about emissions from all of those  
16 trucks?

17 A The emissions from the trucks?

18 Q Yes. Trucks make pollution, right?

19 A Diesel fuel?

11:06 20 Q Yes. Carbon dioxide, right?

21 A Not -- I mean, there might be some releases  
22 of -- from diesel fuel, but I did not consider that  
23 as an issue for this remedy, no.

24 Q I'm not talking about spills of fuel --

11:07 25 A You are talking about emissions.

1 Q -- although I suppose that's possible, too.  
2 I'm talking about emissions from trucks  
3 going back and forth between Opportunity and Spokane  
4 for 20 months.

11:07 5 A Yeah, diesel emissions. But there's trains  
6 that go through that same corridor every day multiple  
7 times a day with the same type of issue. I don't see  
8 that as a big release or a concern -- environmental  
9 concern.

11:07 10 Q So you don't see that as a concern because  
11 there's already train traffic along that corridor so  
12 adding --

13 A I don't see it as a major contribution for  
14 any concern of diesel fuel being burned to drive a  
11:07 15 truck that distance, no.

16 Q You wouldn't have to dispose of all of the  
17 soil in one landfill necessarily, would you?

18 A That's possible, sure. It could be multiple  
19 landfills, uh-huh.

11:08 20 Q But you don't know whether there are  
21 landfills closer than Spokane that could take all of  
22 this soil, for example?

23 A Well, no, I don't, because I called Waste  
24 Management and that's -- those are the three  
11:08 25 locations we talked about.

1 Q Why don't you look at the cost page in your  
2 report there.

3 Are you with me there?

4 A Yes, uh-huh. Table 1?

11:09 5 Q Yes.

6 And let's focus for now on task one, which  
7 you've labeled "Soil Excavation and Restoration."

8 A Yes.

9 Q And in the second and third rows, you have  
11:09 10 "Soil disposal cost" and "Soil disposal cost -  
11 transportation," right?

12 A Yes, that's right, uh-huh.

13 Q And 650,000 tons for each?

14 A Correct.

11:09 15 Q Okay. And then you have a \$26 per ton  
16 disposal cost --

17 A Correct.

18 Q -- is that right?

19 And in the far right column you have  
11:10 20 \$16,965,000 for that, right?

21 A That's right.

22 Q And that's simple mathematics. You just  
23 multiply 650,000 tons times 26?

24 A Correct.

11:10 25 Q And then below that you have a cost for

1 transportation. That's the transportation from  
2 Opportunity and Crackerville to Spokane.

3 Is that what it is?

4 A Yes. That's right, yes.

11:10 5 Q And you've costed that at \$48 a ton, right?

6 A Correct.

7 Q And doing that arithmetic, you come up with  
8 \$31,200,000?

9 A Correct.

11:10 10 Q The total cost of your soils remedy is  
11 \$51,656,400, correct?

12 A Yes.

13 Q And if I'm doing the arithmetic correctly,  
14 if you take out your transportation and disposal  
11:10 15 costs, the total cost of your proposed soil  
16 restoration is only \$3,491,400; is that right?

17 A Assuming your calculation's correct and that  
18 would just leave a cost of an excavator operator, a  
19 clean fill import, topsoil and sod, just looking at  
11:11 20 those line items.

21 Q Well, my question is what the total cost of  
22 your soils remedy is if you remove the disposal and  
23 transportation costs that we just discussed.

24 Would you like to use a calculator?

11:11 25 A I would, just to confirm what the number

1       that you --

2           Q     You got one?

3           A     I've got one.

4                 I have \$3,491,400. Is that what you said?

11:12 5           Q     Yes.

6           A     Okay. Thank you.

7           Q     Have you heard of the Anaconda smelter

8       development repository?

9           A     I have heard that name.

11:12 10          Q     You've read the report of Dave Folkes that

11       was issued in this case?

12          A     I did read that.

13          Q     So you are aware that there is a landfill

14       that's only about five miles from the center of

11:13 15       Opportunity, right?

16          A     I'm aware of it.

17          Q     And you are also aware that the cost of

18       disposal at that landfill is nothing?

19          A     Not aware of that.

11:13 20          Q     Did you contact that waste repository?

21          A     I did not.

22          Q     If we assume that the cost of disposal is

23       free at that landfill, that would eliminate this

24       entire line item on your cost sheet of \$31,200,000,

11:13 25       right? I'm sorry, \$16,965,000?

1           A    That would be correct.  Because that is  
2   the -- what we call a tipping fee at the landfill.  
3   So that would just be the cost of the landfill dirt,  
4   I mean putting the soil in the landfill.

11:14 5           Q   And with respect to the transportation cost  
6   of \$48 per ton resulting in \$31,200,000, that would  
7   be greatly reduced if you only had to transport this  
8   waste four or five miles instead of 300, right?

9           A    That would be less, yes.

11:14 10          Q   Why didn't you look into that?

11           A    I couldn't presume -- well, let me state  
12   first it's my understanding that that landfill is  
13   owned by Arco, so I couldn't presume that they would  
14   want that soil taken there.

11:14 15           And secondly I didn't know who to call, who  
16   would have authority at this point at a stage like  
17   where we're at right now to give me authorization or  
18   even give me a price, if it was free, to be able to  
19   send soil there.  Seemed presumptive of me to be able  
11:15 20   to do that.

21           Q    Did you do any research online or otherwise  
22   to try to figure out who you would contact to learn  
23   about disposal at that landfill?

24           A    I did not.

11:15 25          Q   Did you contact anyone at the county to ask



1 about that landfill?

2 A I talked to some people at the county, but  
3 not in any detail about whether or not that would be  
4 appropriate or allowed to have the soil go there.

11:15 5 Q Who did you talk to at the county?

6 A I talked to a gentleman in the planning  
7 department in Anaconda with the county and talked in  
8 general terms about -- very general terms about that  
9 location. But he had no authority or, really  
11:16 10 frankly, any interest in really wanting to give me  
11 any detail about it.

12 Q There's also a landfill in Butte, isn't  
13 there?

14 A I am not aware of the landfill in Butte.

11:16 15 Q How about landfills elsewhere in Western  
16 Montana, did you do any investigation to see if there  
17 were any sites in Western Montana that would take  
18 this waste?

19 MR. KOVACICH: Objection. He's already answered  
11:17 20 that.

21 THE WITNESS: I just called Waste Management to  
22 find, you know, where they had their landfills  
23 located. I knew they had some in the area, and then  
24 Spokane was the closest one.

11:17 25 BY MR. RAUCHWAY:

1 Q In the course of your consulting work  
2 outside of this case, have you disposed of soil in  
3 non-Waste Management, Inc. facilities before?

4 A Yes. Other landfills owned by other  
11:17 5 companies?

6 Q Right.

7 A Yes.

8 Q Can you tell me some of them that you've  
9 used in the past?

11:18 10 A Rebanco, that's now known as Allied Waste.  
11 Pierce County has a landfill of their own that they  
12 manage for the Pierce County health department, and  
13 that would be in the Tacoma area.

14 That's about it for around here. Aren't  
11:18 15 many landfills.

16 Q So you don't have any experience with  
17 landfills outside of Washington State?

18 A Well, Waste Management landfills in Oregon.  
19 Their hazardous waste landfill is located outside of  
11:18 20 Portland.

21 Q And you've utilized that in the course of  
22 your work?

23 A I have, yes, uh-huh.

24 It's not really applicable to this case, but  
11:19 25 when you didn't say just what you were asking about,

1 I sent soil to a landfill in Pennsylvania at a site I  
2 worked at. Other states that we've worked at we've  
3 had soils sent to local landfills in different  
4 states.

11:19 5 Q With respect to your work with other  
6 landfills in Washington State, did you have any  
7 problems with the Allied Waste landfill that you  
8 used?

9 A What type of problems do you mean?

11:19 10 Q Problems with how they handled the waste.

11 A Through manifesting or what specifically do  
12 you mean?

13 Q Any problems.

14 A Any types of problems? Not that I'm aware  
11:19 15 of, no, unh-unh.

16 Q How about the Pierce County landfill that  
17 you referred to?

18 A Same. I don't recollect any problems  
19 dealing with the landfill or the people working at  
11:20 20 the landfill.

21 MR. RAUCHWAY: Okay. I think we're at a good  
22 time to change the tape.

23 THE VIDEOGRAPHER: Going off the record. The  
24 time now is approximately 11:20 a.m. This is the end  
11:20 25 of disk number 1 in the deposition of John Kane.

1 (Off the record.)

2 THE VIDEOGRAPHER: Going back on the record.

3 The time now is approximately 11:25 a.m. This is the  
4 beginning of disk number 2 in the deposition of  
11:25 5 John Kane.

6 BY MR. RAUCHWAY:

7 Q Mr. Kane, were you instructed as part of  
8 your assignment in this case not to consider any  
9 landfills other than those operated by Waste  
11:25 10 Management, Inc.?

11 A I was not.

12 Q Were you instructed at any point during your  
13 work on this case not to consider any landfills  
14 closer to Opportunity and Crackerville than Spokane?

11:25 15 A I was not.

16 Q You are aware that if you were to find one  
17 or more landfills closer to Opportunity and  
18 Crackerville than Spokane that it would lower the  
19 figures on your cost table that we talked about  
11:25 20 previously?

21 A Not necessarily. And the reason I say that  
22 is other landfills could charge more per ton for  
23 disposal.

24 Q It would lower the transportation costs,  
11:26 25 wouldn't it?

1           A   Likely.

2           Q   And if you were to find a landfill somewhere  
3 very close by, it would likely lower those  
4 transportation costs substantially.

11:26 5           Is that fair?

6           A   I don't know what you mean by  
7 "substantially."

8           Q   Well, we've talked about landfills that are  
9 five miles away, the repository, right?

11:26 10          A   We mentioned that, yes.

11          Q   We talked about a landfill in Butte.  
12 That's, would you say, 20 miles away?

13          A   I believe that's right, yes.

14          Q   And if you were to dispose of the soil five  
11:26 15 miles away or 20 miles away, that would substantially  
16 lower your \$48 per ton transportation fee, wouldn't  
17 it?

18          A   Depending on the company that does the  
19 transportation work and what their fees are, but  
11:27 20 based on distance alone likely be less than that  
21 number, yes.

22          Q   The further you take it, the more it's going  
23 to cost, right?

24          A   Not necessarily a significant amount.  
11:27 25 Depends that number based on a rate. That certainly

1 is a longer distance, but also a reduced rate because  
2 of that extra distance. However, if a site is within  
3 5 to 20 miles, it will be less than that number, I'm  
4 pretty sure, too, yes. What I'm saying is that this  
11:27 5 is -- this could be a discounted rate because of the  
6 distance. A landfill that might be further than  
7 20 miles away, may be less than that, but I don't  
8 know if it would be substantially less than that  
9 number.

11:27 10 Q How did you come up with your \$48 a ton  
11 figure?

12 A From Waste Management. That's what they  
13 gave me.

14 Q And same with the \$26 tipping fee, that was  
11:28 15 also from Waste Management?

16 A That's correct.

17 Q Looking at your report on page 10 --

18 A Page 10.

19 Q -- are you with me?

11:28 20 A I'm on page 10.

21 Q There's a sentence in your 4a that says  
22 "Clean import fill can be provided by local sources,  
23 used to provide clean fill for the Silver Bow Creek  
24 restoration."

11:28 25 Do you see that sentence?

1 A Yes, I do.

2 Q And I think you have the same sentence in  
3 your rebuttal report as well.

4 A That's correct.

11:28 5 Q What local sources are you referring to?

6 A That local source is from a conversation I  
7 had with David -- give me a second. The owner of a  
8 company that's called WET, I believe based either out  
9 of Butte.

11:29 10 Q David Erickson?

11 A Yes. Thank you. Yes.

12 Q And what did Mr. Erickson tell you?

13 A He told me that there was a clean fill  
14 import area located near Silver Bow Creek that was  
11:29 15 being used to bring in clean fill for Silver Bow  
16 Creek restoration.

17 Q Did you verify that for yourself or did you  
18 rely on Mr. Erickson's word for that?

19 A I relied on Mr. Erickson's word on that.

11:29 20 Q Do you know specifically what location for  
21 that clean fill he was referring to?

22 A I recall him telling me it was clean fill  
23 from an area that was owned by his parents.

24 Q And did Mr. Erickson tell you that there  
11:30 25 would be 650,000 tons available at that location?

1 A He did say that, yes. He thought so.

2 Q And did Mr. Erickson offer that clean fill  
3 to the plaintiffs in this case for free?

4 A No.

11:30 5 Q How much is he going to charge for that  
6 clean fill?

7 A What he told me, and this is my  
8 understanding, is what he's charging now for the  
9 Silver Bow restoration was a dollar a ton.

11:30 10 Q And is that factored into your cost table  
11 somewhere?

12 A Yes. In task one where it says "Clean fill  
13 import," 650,000 tons at a dollar a ton, \$650,000.

14 Q I see.

11:31 15 Are you aware that Mr. Erickson has  
16 previously served as an expert witness for these same  
17 plaintiffs' lawyers in other cases?

18 A Yes, I believe that's true.

19 Q Did you investigate any other potential  
11:31 20 sources of clean fill to use for your proposed  
21 cleanup?

22 A No, I didn't.

23 Q When you say "clean," what do you mean by  
24 that?

11:31 25 A My understanding is it would be



1 concentrations of metals of concern that would be  
2 below background, our calculated background number.

3 Q So, for example, for arsenic, you believe  
4 that this clean fill will be below 12.98 parts per  
11:32 5 million?

6 A That's my understanding, yes.

7 Q And what is the source of your understanding  
8 of that?

9 A From discussions with Mr. Erickson that it  
11:32 10 was fill in an area not impacted by smelter  
11 emissions, and that would be within a range of  
12 background concentrations.

13 Q Did Mr. Erickson tell you it would be within  
14 a range of background concentrations or did he tell  
11:32 15 you specifically that it would be below approximately  
16 13 parts per million of arsenic, for example?

17 A Not the latter, the former, that it was  
18 clean fill being used for the Silver Bow Creek  
19 restoration, that the metals concentrations were low.  
11:32 20 But not a specific number, no.

21 Q Did you provide a copy of your expert report  
22 to Mr. Erickson?

23 A I did not.

24 Q Do you know if he had read a copy of your  
11:32 25 expert report?

1 A I don't believe he has, no.

2 Q So you don't know if his concept of what  
3 background is is the same as what you calculated  
4 background to be, do you?

11:33 5 A I don't know what he knows about that,  
6 that's true.

7 Q I think my question was a little more  
8 specific than that.

9 A Okay.

11:33 10 Q He told you this soil is below background,  
11 but you don't know if his -- if what he meant as  
12 background is the same as what you think background  
13 is, right?

14 A He told me it was clean fill being used for  
11:33 15 the Silver Bow Creek restoration. We did not discuss  
16 a specific number as what background would be that I  
17 recall, no.

18 Q All right. Let me ask it a little better.

19 If you didn't provide your report to  
11:33 20 Mr. Erickson and you didn't discuss specific levels  
21 that you believe to be background, you have no way of  
22 knowing whether his conception of what background is  
23 for this clean fill matches up with what your  
24 conception is.

11:34 25 Is that fair to say?

1           A    That's fair, yes, uh-huh.

2           Q    And then you reference this Silver Bow Creek  
3 restoration.

4           A    Yes.

11:34 5           Q    What is that?

6           A    Well, my understanding is that there is some  
7 revegetation and some excavation of tailings along --  
8 or along Silver Bow Creek that are being replaced by  
9 Arco just to the east of Opportunity. But you can --  
11:34 10          I mean, you can see the restoration occurring when  
11 you drive on Highway 90.

12          Q    Have you looked into what EPA standards are  
13 for clean fill?

14          A    I have not.

11:34 15          Q    For your proposed cleanup in Opportunity and  
16 Crackerville, are you -- you are not proposing to  
17 demolish houses like you did in Everett, are you?

18          A    That wasn't part of my plan, no.

19          Q    Okay. So there still may be impacted soils  
11:35 20 under houses; is that right?

21          A    That's possible, yes.

22          Q    Are you planning on removing large trees?

23          A    That was not part of my plan, no.

24          Q    So there will likely be soil that you  
11:35 25 believe is contaminated contained in the root system

1 of large trees?

2 A Could you explain that question in a little  
3 more detail what you mean by within the root system?

4 Q Sure.

11:35 5 Well, as I'm envisioning your remedy, when  
6 you remove the top two feet of existing surface, you  
7 will be carving out in some cases pretty sizable  
8 islands around large trees if you are not going to  
9 destroy them, right?

11:36 10 A I think by hand, since it's only going two  
11 feet, a good contractor can dig around the trees and  
12 remove a lot of the soil that's up and near the trees  
13 within a couple of feet, yeah.

14 Q But some of the soil underneath those trees  
11:36 15 that won't be removed still might be impacted; isn't  
16 that right?

17 A You know, I didn't sample beneath any of the  
18 trees or really too close to any of the trees. But  
19 if this is a hypothetical question you are asking me,  
11:36 20 I believe that could be possible.

21 Q Are you proposing to dig up driveways to do  
22 this cleanup?

23 A Our proposal is the entire square footage of  
24 all of the parcels.

11:37 25 Q Excluding the houses, right?

1           A    I didn't exclude the houses -- beneath the  
2           houses, no, I didn't.

3           Q    So that's an area that's an adjustment that  
4           ought to be made to your square footage calculation  
11:37 5           in order to make it more accurate?

6           A    No. The square footage is the entire  
7           parcel, so that would be within the footprint of the  
8           structures on the property, too.

9           Q    I understand that.  
11:37 10           But if you are not proposing to remove the  
11           soil under the structures, then your square footage  
12           calculation is off by whatever the square footage of  
13           the structure is, right?

14           A    I misspoke. The soil removal would include  
11:37 15           beneath structures, too, yes.

16           Q    So you are going to get beneath the  
17           structures without removing them, removing the  
18           structures?

19           A    Yes, I think it's very possible, yeah.

11:37 20           Q    All of the way underneath?

21           A    Yeah. I mean, some of them are trailer  
22           homes that can be moved. Others can just be propped  
23           up with some effort, but they can be raised enough to  
24           be able to get underneath for an excavation of a  
11:38 25           couple of feet. That's very possible.

1 Q So --

2 A House jacks, that kind of thing.

3 Q -- with respect to the stick homes, you are  
4 contemplating that you are going to jack up these  
11:38 5 houses and remove two feet of soil underneath them?

6 A That's right, yeah.

7 Q Are the people going to be living in the  
8 houses when you do this?

9 A Probably not.

11:38 10 Q So you are contemplating moving these people  
11 out of their homes for some period of time?

12 A Very short period of time. If people had to  
13 leave, it could be just a couple of days, maybe even  
14 less.

11:38 15 Q And I think we started down this particular  
16 line of questioning asking about driveways.

17 Do you plan on digging up people's  
18 driveways?

19 A Well, that's within the footprint of the  
11:38 20 parcel, yes.

21 Q So yes?

22 A Yes. The answer, yes.

23 Q How about roads?

24 A Roads? What road would be an example? I  
11:39 25 don't -- you would have to explain to me where

1       there's a road that would have to be dug up on one of  
2       the plaintiffs' properties.

3           Q     I'm not making any representation it needs  
4       to be done. I'm just asking whether you are  
11:39 5       contemplating tearing up any of the streets in  
6       Opportunity or Crackerville?

7           A     No, I'm not recommending that, no.

8           Q     And you are not contemplating any kind of  
9       soils removal on plaintiffs' neighbors who are not a  
11:39 10       part of this lawsuit, right?

11          A     That's correct. It's just the plaintiffs,  
12       yes.

13          Q     Do you know how many plaintiffs there are in  
14       the case?

11:39 15          A     I think the number 62.

16          Q     Do you know what the population of  
17       Opportunity and Crackerville is?

18          A     I think it's around 500, 300, something like  
19       that.

11:40 20          Q     Do you plan on removing buried utilities?

21          A     Removing buried utilities? What do you --  
22       could you define in more detail what you mean by  
23       "removing buried utilities"?

24          Q     Sure.

11:40 25               Any utilities that are within the top two

1 feet of the -- of surface, whether that be power or  
2 water or, you know, I don't think there's gas out  
3 there --

4 A No.

11:40 5 Q -- but there could be.

6 A You wouldn't have to remove utilities. You  
7 could work around them.

8 Q And you are contemplating doing that?

9 A If that would be part of the removal of soil  
11:40 10 within the parcel and there were utilities to deal  
11 with, we would remove soil around those utilities  
12 lines, yes.

13 Q Have you looked into whether there are  
14 buried utilities within the top two feet of the soil?

11:41 15 A We did a utility locate before doing our  
16 sampling, and there are utilities going into the  
17 homes. Whether they are exactly two feet or they  
18 might be two and a half or three feet, I don't know.  
19 They might be deeper than two feet and in that case  
11:41 20 they won't be an issue. If they are --

21 So I don't have that per parcel, that  
22 knowledge of exactly the depth of the utilities, if  
23 they are two feet or three feet or one foot.

24 Q Removing the top two feet of soil on these  
11:41 25 properties is going to destroy the existing



1       vegetation there, isn't it?

2           A     Yes.   This is the grass.

3           Q     Also shrubs and bushes and gardens and that  
4       sort of thing?

11:42 5           A     I don't think so.   I think shrubs can be  
6       removed and then replanted.

7           Q     Is that something that you have accounted  
8       for in your proposed clean-up plan, that when  
9       people's shrubs are removed that they will be set  
11:42 10      aside and then replanted?

11          A     That is a cost that I put into the  
12      contingency for unknowns like that, additional costs.  
13      But I don't know if that's a huge additional cost for  
14      removing shrubs.   It could be as simple as someone  
11:42 15      using a shovel and digging the shrub up and moving it  
16      out of the way.   It's part of the construction  
17      activity.

18          Q     And where would those shrubs be stored while  
19      you do this?

11:42 20          A     I would envision they would stay on the  
21      property.

22          Q     There would be a lot of disruption in the  
23      area while your proposed cleanup was going on,  
24      wouldn't there be?

11:43 25          MR. KOVACICH:   Objection; vague.

1           THE WITNESS: Could you describe what you are  
2 asking in a little bit more detail? When you say  
3 "disruption," do you mean on the owner's property or  
4 in the area or --

11:43 5 BY MR. RAUCHWAY:

6           Q In the area.

7           A In the area. I don't envision it being a  
8 huge disruption. There will be, for example,  
9 excavator working on the property. There will be  
11:43 10 trucks coming in and out being loaded. That's not a  
11 huge disruption. It's not like we're closing roads  
12 or anything like that.

13           Q Do you think you can remove 650,000 tons of  
14 soil from 60 or 70 properties without closing any  
11:43 15 roads?

16           MR. KOVACICH: Objection; asked and answered  
17 and argumentative.

18           THE WITNESS: I'm actually not envisioning  
19 closing roads, a need for that. You know, it's  
11:44 20 possible when the work started maybe the county might  
21 ask that some roads be closed, but I haven't gotten  
22 to that level of detail at this point.

23 BY MR. RAUCHWAY:

24           Q There's going to be a lot of truck traffic  
11:44 25 if this is done the way you want it done, right?

1           A    There will be additional truck traffic than  
2   what people are used to in Opportunity, that's true.

3           Q    And a lot of noise, right?

4           A    Should be noise due to excavator and trucks,  
11:44 5   yes.

6           Q    And also workers coming and going to do  
7   this?

8           A    Don't see that as a huge noise problem.  
9   They are driving in their trucks or cars to get to  
11:44 10   the site and then to go home at the end of the day;  
11   so no, I don't see that as a problem.

12          Q    Are you familiar with the public  
13   participation or public input component of CERCLA and  
14   analogous state environmental laws?

11:45 15          A    I have heard of that.

16          Q    And I think you made a reference earlier  
17   today to public meetings. Have you facilitated any  
18   of that public input process in the course of your  
19   career?

11:45 20          A    In Montana or do you mean anywhere?

21          Q    Anywhere.

22          A    Anywhere? Yes, I have facilitated and run  
23   public meetings, yes.

24          Q    Have you made any effort to ascertain what  
11:45 25   the views of the rest of the community in Opportunity

1 and Crackerville, the other several hundred people  
2 who aren't plaintiffs in this case, are about your  
3 proposed remedy?

4 A I have not.

11:45 5 Q I think I asked you this before. If I did,  
6 I apologize.

7 Have you made any attempt to ascertain what  
8 the views are about anyone in the surrounding  
9 community to the landfill in Spokane where you've  
11:46 10 proposed to dispose of the soil that you are removing  
11 from Crackerville and Opportunity?

12 A I don't recall there being a lot of  
13 residential properties in that area because what I  
14 recall is that that Spokane landfill is north of the  
11:46 15 city. So I have not made any inquiries about  
16 potential residences. I would think that they would  
17 place a landfill away from residential properties  
18 anyway because it's a landfill that's accepting  
19 material probably on a daily basis. Whether it be  
11:46 20 contaminated soil or normal waste, I don't know. So  
21 I didn't pursue that line of investigation.

22 Q Did you confirm that there aren't any  
23 residential communities around that landfill in  
24 Spokane or are you just operating from memory?

11:46 25 A No, I'm coming from memory. I didn't call

1       them and ask that question saying do you have  
2       residences around your landfill. I didn't make that  
3       call, no.

4               Q    On page 10 of your report again, you make a  
11:47 5       number of references to restoration and restoring  
6       these properties.

7               Do you see where I'm talking about?

8               A    4a? On page 10, the paragraph 4a?

9               Q    Yes. I believe you used that word or some  
11:47 10       form of it in 4, 4a and 4b.

11              A    Restoration in 4. 4a, practicable  
12       restoring, yeah. 4b. Yes, uh-huh.

13              Q    What do you mean by that? What do you mean  
14       by the term "restoration"?

11:48 15             A    Restoration -- well, 4a, for example,  
16       explains it really. It says "Restoring surface soil  
17       to background levels of arsenic and other heavy  
18       metals." So that defines really what I mean by  
19       restoring in this -- in this paragraph.

11:48 20            Q    So with respect to restoring for both soils  
21       and groundwater, you are talking about restoring  
22       these properties to their background levels of the  
23       particular contaminants that you investigated?

24              A    Background concentrations based on our  
11:48 25       investigation, yes.

1 Q And why did you decide to use that metric  
2 for your proposed cleanup?

3 A Our approach for this case was -- or for  
4 this work was to establish background for the metals  
11:49 5 that would be at concentrations not impacted from  
6 smelter operations.

7 Q Do you know when the smelter began  
8 operations?

9 A Old Works was 1884, and then really the  
11:49 10 smelter operations continued until 1980. Smelter  
11 Hill was, if I remember right, early 1900s when it  
12 was moved over there.

13 Q So your goal was to restore these properties  
14 to their 1883 condition?

11:50 15 A To concentrations below background. Whether  
16 or not they were impacted in 1884 or not, I don't  
17 know, but to below concentration -- to at  
18 concentrations that are considered background for  
19 that area, yeah.

11:50 20 Q And when you said "our approach for this  
21 case," by that do you mean that was the assignment  
22 you were given by plaintiffs' counsel?

23 A Yes. To figure background concentrations  
24 for soil and groundwater, yeah.

11:50 25 Q And you carried out that assignment despite

1 the fact that you've never ever worked on a cleanup  
2 before where the goal was to restore the site back to  
3 background levels; isn't that true, sir?

4 MR. KOVACICH: Objection; that's just argument.

11:50 5 THE WITNESS: I don't know if that matters.

6 I've done plenty of investigations with all sorts of  
7 different clean-up levels in 25 different states in  
8 the United States. Every state's got a different  
9 number.

11:51 10 BY MR. RAUCHWAY:

11 Q Okay. My question is not whether you think  
12 it matters or not. My question was you carried out  
13 that assignment despite the fact that you've never  
14 worked on a cleanup before where the goal was to  
11:51 15 restore the site to background levels; isn't that  
16 true, sir?

17 MR. KOVACICH: Objection; argumentative.

18 THE WITNESS: I don't know why it matters.

19 BY MR. RAUCHWAY:

11:51 20 Q Okay.

21 A Yeah. It's still coming up with a range of  
22 numbers or a number that is considered the number to  
23 be able to clean a site up to.

24 Q You made a record that you don't think it  
11:51 25 matters --

1 A Yeah.

2 Q -- and you are entitled to do that.

3 A Yeah.

4 Q But I'm also entitled to an answer to my  
11:51 5 question.

6 My question was you carried out that  
7 assignment despite the fact that you've never worked  
8 on a cleanup before where the goal was to restore the  
9 site to background levels; isn't that true?

11:51 10 MR. KOVACICH: Objection. It's an argumentative  
11 question.

12 Go ahead and answer.

13 THE WITNESS: All right. Well, that's an  
14 interesting way to put it because in some cases and  
11:52 15 in some states the clean-up level for metal is based  
16 on background calculations. So, for example, in  
17 Washington State, the number's 20 for cleanup, the  
18 regulatory level. But it's my understanding that  
19 that number came about with negotiations of what's  
11:52 20 considered background in Washington State.

21 So as far as a regulatory point of view,  
22 that would be correct, yes. As far as how those  
23 numbers became the clean-up level, I think some of  
24 them are considered background concentrations.

11:52 25 BY MR. RAUCHWAY:



1 Q Background is ordinarily used as a clean-up  
2 metric only where the regulatory standard exceeds  
3 background; isn't that right?

4 A Could you just repeat that question again?

11:53 5 Q Sure.

6 A Yeah.

7 Q Background is ordinarily used as a clean-up  
8 metric only where the regulatory standard exceeds  
9 background.

11:53 10 I'm sorry. I probably confused you because  
11 I got that backwards myself. Let me just start over.

12 A Sure.

13 Q Background is ordinarily used as a clean-up  
14 standard only where the background levels exceed the  
11:53 15 applicable regulatory standard; isn't that right?

16 MR. KOVACICH: I'm going to make an objection  
17 that that is really a question about legal matters  
18 and regulatory issues. It's vague in terms of what  
19 state or regulatory agency we're talking about and it  
11:53 20 doesn't apply to the case that we're dealing with  
21 here.

22 You can try to answer subject to my  
23 objection.

24 BY MR. RAUCHWAY:

11:53 25 Q I'm asking in your experience working on

1 other cleanups.

2 A Yeah. I'm a little confused because I'm  
3 thinking about other cleanups in other states that  
4 I've done where I've done some cleanups, and in some  
11:54 5 cases background -- yeah. No. Give me one more shot  
6 at it. Ask me one more time.

7 Q Sure. Let me try giving you an example.  
8 Maybe that will help.

9 A That would be great, thanks.

11:54 10 Q All right. Let's assume at a hypothetical  
11 site the clean-up level for lead is 100 parts per  
12 million.

13 A Okay.

14 Q But everyone agrees that the background  
11:54 15 level is 200 parts per million. In that instance the  
16 background level would be used as the action level  
17 rather than the regulatory standard; isn't that  
18 right?

19 A I think that's possible where that could  
11:54 20 happen, yeah. Yeah.

21 Q Okay. So where the action -- where the  
22 regulatory standard is above background, the  
23 regulatory standard, in your experience, is used as  
24 the action level rather than background?

11:55 25 A Well, now that's where it's a little

1 confusing, because again sometimes that regulatory  
2 standard being above background is actually based on  
3 background for an entire area or entire state, so  
4 it's not a clear answer.

11:55 5 Q Well, I understand that background  
6 calculations may have been considered in coming up  
7 with a regulatory standard, but still whatever the  
8 regulatory standard is, that's what's used, in your  
9 experience; isn't that right?

11:55 10 A That would be true, yes, in some states.

11 Now, I want to qualify that because in some  
12 states, for example, Oregon, it's risk based. So  
13 there could be a situation where you need to go even  
14 lower than the clean-up standard that might be  
11:55 15 established by the state due to site specific  
16 considerations. So that's why I'm -- it's a  
17 difficult question to answer.

18 Q What do you believe that you will accomplish  
19 in this case cleaning to background as opposed to  
11:56 20 cleaning to the applicable regulatory standards?

21 MR. KOVACICH: Objection; vague.

22 THE WITNESS: So go ahead and repeat the  
23 question again, please.

24 BY MR. RAUCHWAY:

11:56 25 Q Sure.

1           What do you believe that you will accomplish  
2           in this case if you clean these properties to  
3           background as opposed to the applicable regulatory  
4           standards?

11:56 5           MR. KOVACICH: Objection that's vague.

6           THE WITNESS: Removing the upper two feet of the  
7           soil, where we've calculated it being much higher  
8           than background concentration will result in the  
9           entire soil on a property being at background  
11:57 10          concentrations.

11          BY MR. RAUCHWAY:

12           Q    Are you expressing the opinion in this case  
13           that cleaning up to background is necessary to remove  
14           an existing health risk to the plaintiffs who live on  
11:57 15          these properties?

16           A    I'm not a risk assessor. I'm not a  
17           toxicologist. So really I'm looking at it purely  
18           from a geologist's point of view, background versus  
19           non-background. Starting to talk about human health  
11:58 20          risk assessment thing is beyond my education and  
21           knowledge. Other than my normal day-to-day dealing  
22           with chemicals and metals, it's similar to projects  
23           that I've worked on.

24           Q    You are not qualified to determine whether  
11:58 25          there is a health risk to any of the plaintiffs to

1 living on their properties as they currently exist?

2 A No, that's not what I said. I said I'm not  
3 a human health risk assessor or toxicologist, but I  
4 certainly deal with chemicals on a daily basis, I  
11:58 5 have an experience with that.

6 Q Are you expressing an opinion in this case  
7 that there is a health risk for the plaintiffs to  
8 continue living on their properties in their current  
9 states?

11:58 10 A I identified the presence of arsenic being a  
11 carcinogen and we have concentrations of arsenic on  
12 the properties. And I base that opinion on  
13 literature that I looked at that stated -- you know,  
14 EPA has stated that arsenic is a carcinogen. So very  
11:59 15 straightforward, you know, citing existing  
16 literature, existing knowledge.

17 Q Well, we'll get to that in a minute --

18 A Uh-huh.

19 Q -- but the fact that there might be arsenic  
11:59 20 in some concentration on plaintiffs' properties and  
21 the fact that arsenic in some concentration at some  
22 level of exposure is a carcinogen is much different  
23 than it actually posing a risk to these plaintiffs;  
24 isn't that right?

11:59 25 A I'm not qualified to answer that question.

1 My point of view, from what I said already, was that  
2 removing -- our proposal is to remove soil with the  
3 concentration of arsenic and other metals above their  
4 background concentrations, to restore the site to  
11:59 5 background levels.

6 Q Okay.

7 A So it's -- from my point of view, it's not  
8 based on human health risk assessment or anything  
9 like that. It's purely from a concentration point of  
12:00 10 view or knowledge.

11 Q I think I understand that.

12 Are you expressing the opinion that it is  
13 dangerous for plaintiffs to live on their properties  
14 without this cleanup being done?

12:00 15 A Could you define what you mean by  
16 "dangerous"?

17 Q Same as a health risk.

18 A Health risk.

19 Q Is this cleanup necessary to protect the  
12:00 20 health of these plaintiffs?

21 A As I stated I know that arsenic and cadmium  
22 are known carcinogens, and our approach in doing this  
23 cleanup is to remove concentrations of these metals  
24 above background concentrations. Whether or not they  
12:01 25 fall within a range that is a human health risk

1 assessment number, I don't have that information.  
2 That's not something I calculated. It's not  
3 something I really looked at. It's not my scope of  
4 work.

12:01 5 Q Okay. So you are not expressing any opinion  
6 that this cleanup is necessary to protect the health  
7 of these plaintiffs, fair?

8 A Fair.

9 MR. KOVACICH: Object --

12:01 10 THE WITNESS: That's my -- that's my approach.  
11 But again, I have stated in here that these are known  
12 carcinogens.

13 BY MR. RAUCHWAY:

14 Q And you are referring to the opinions that  
12:01 15 you express on page 9 of your report?

16 A Yes.

17 Q And I believe as you already said that you  
18 are not a toxicologist, right?

19 A I'm not a toxicologist.

12:02 20 Q And you don't claim any special expertise in  
21 toxicology?

22 A I do not.

23 Q You are not an epidemiologist, are you?

24 A I am not.

12:02 25 Q And do you claim any special expertise in

1 epidemiology?

2 A I do not.

3 Q You are not a doctor, are you, sir?

4 A I'm not a doctor.

12:02 5 Q Do you claim any special expertise in  
6 medical matters?

7 A No, I do not.

8 Q You talk about known health effects and  
9 carcinogens here in your opinions on page 9, right?

12:02 10 A Uh-huh, yep.

11 Q Whether something has health effects depends  
12 on the kind of exposure that you have, right?

13 A I need to explain that question, what you  
14 are asking me I'm not sure. Because I just told you  
12:02 15 I'm not a doctor or toxicologist, but it sounds like  
16 you are asking me a toxicological question, so --

17 Q I'm asking you about the opinions that you  
18 are expressing on Page 9 of your report, sir.

19 A Oh.

12:03 20 Q My question is whether something has a known  
21 health effect depends on the kind or type of exposure  
22 you have. And I will give you an example if that  
23 will help.

24 A Yeah.

12:03 25 Q Something might have a health effect if you



1 drink it but not if you walk on it or blows onto your  
2 skin. Would you agree with that?

3 A Well, what I've said here is that, you know,  
4 arsenic increases the risk of skin cancer and cancer  
12:03 5 in the liver, bladder and lungs. That's based on my  
6 review of documentation from the Department of Health  
7 and Human Services and EPA information.

8 Q Okay. I'm asking you about this phrase  
9 "Known health effects" that you use in your heading  
12:03 10 on paragraph 2 on page 9.

11 Do you see that phrase, "Known health  
12 effects"?

13 A "Known health effects," yes, uh-huh.

14 Q And my question to you, if you know, is that  
12:03 15 the health effects that a given compound might have  
16 depends on the kind of exposure that a person has to  
17 that compound; isn't that right?

18 A I didn't address that in my statement. My  
19 statement was really more matter of fact that I got  
12:04 20 from, you know, EPA and these other agencies stating  
21 that there is a risk of skin cancer and cancer of the  
22 liver, bladder and lungs. It doesn't say anything  
23 about how that risk comes about.

24 Q Do you know the answer to my question?

12:04 25 A It's my understanding that skin cancer from

1       arsenic is due to dermal contact with arsenic.  
2       That's why we wear Tyvek and gloves when we're  
3       dealing with soil that might have arsenic  
4       concentrations in it. So I know from a protective  
12:04 5       and sampling fieldwork knowing to be -- reduce the  
6       potential for that contact, yes, I am aware of that.

7               Q     The health effects that a given compound  
8       might have depends on the kind of exposure that a  
9       person has to the compound; isn't that right?

12:05 10              A     That would be true, yes.

11              Q     And it also depends on the intensity of the  
12       exposure, right?

13              A     Depends what you mean by "intensity."

14              Q     The dose.

12:05 15              A     I don't know. The dose, don't know. I  
16       don't know.

17              Q     You don't know?

18              A     I don't know that much about what the dose  
19       would be or intensity or what you are asking me.

12:05 20              Q     Do you think that the health effect would be  
21       the same if you were exposed to soil that had  
22       200 parts per million arsenic than it would if it had  
23       900,000 parts per million of arsenic?

24              A     I'm actually not qualified to answer that  
12:05 25       question.

1           Q    How about other chemicals?  How about  
2   alcohol, do you think the exposure -- the effect on  
3   the human body depends on the intensity of the dose  
4   of alcohol that's ingested?

12:06 5           MR. KOVACICH:  Objection.  That's not relevant  
6   to anything here --

7           THE WITNESS:  I don't know.

8           MR. KOVACICH:  -- and it's argumentative.

9           THE WITNESS:  I don't understand what your  
12:06 10   question is.

11   BY MR. RAUCHWAY:

12           Q    You don't understand the question?

13           A    Well, you know, I don't know why you are  
14   asking a question about alcohol.  I'm not sure what  
12:06 15   you are driving at.

16           Q    Okay.  Well, you don't really have to.  You  
17   just have to answer my question truthfully if you  
18   can.

19                   My question is really related to the  
12:06 20   intensity of the exposure of the dose, and I'm asking  
21   you whether you know whether the human health effect  
22   that a given chemical might have depends on the  
23   intensity of the exposure or the dose?

24           A    I'm not a toxicologist to really be able to  
12:06 25   answer that in a really serious scientific way.  The

1 rest of it would just be just my own personal  
2 knowledge or knowledge of what I've read in some of  
3 these reports. But I don't have the qualifications  
4 really to answer that question.

12:07 5 Q Do you know it as a general matter?

6 A As a general matter from -- certainly from  
7 doing fieldwork and protective -- personal protective  
8 equipment that's needed to reduce exposure to  
9 chemicals, I'm certainly aware of that.

12:07 10 Q No chemical is without effect given a  
11 sufficient dose; isn't that right?

12 MR. KOVACICH: Objection; vague.

13 THE WITNESS: I don't know.

14 BY MR. RAUCHWAY:

12:07 15 Q You don't know?

16 A I don't know. I don't know. That's a  
17 general -- general -- I mean, does oxygen have a  
18 negative effect on you? I don't know. I don't know  
19 what you mean by that question.

12:07 20 Q You can die from drinking too much water,  
21 can't you?

22 A One can drown, yes.

23 Q You can actually die from drinking it aside  
24 from drowning, right?

12:07 25 A I've never heard of that.

1           Q    You can die from ingesting too much salt,  
2           can't you?

3           A    That I've heard of, yes.   Drinking salt  
4           water for example, yes.

12:08 5           Q    And you talk about carcinogens here as well.  
6           Are you expressing the opinion that any of these  
7           plaintiffs have been exposed to any of these  
8           chemicals in such a way as to be at risk of  
9           contracting cancer?

12:08 10          A    No.   I didn't make that statement in this  
11          statement here, unh-unh, nope.

12          Q    Are you expressing any opinions, other than  
13          simply reporting the facts, that certain metals have  
14          health risks and some are carcinogens at some level  
12:08 15          and type of exposure?

16          A    That's correct.   That's what I'm doing here  
17          on this statement.

18          Q    And you don't have any idea as to whether  
19          that type and level of exposure has occurred in this  
12:08 20          case, do you?

21          A    That was not my intent to come up with a  
22          number or exposure scenarios or anything like that  
23          as a matter of fact.   Stating that some of these  
24          metals are known health effects and are known  
12:09 25          carcinogens, very simple straightforward.

1 Q So you don't have any idea? You don't know?

2 A I didn't say that --

3 Q Well, my question --

4 A -- at all. I said that I did have an idea  
12:09 5 because I read this literature and it was very clear  
6 that said that, you know, arsenic is a known  
7 carcinogen.

8 Q Well, let's make sure we get a precise  
9 question and answer.

12:09 10 You don't know whether the type and level of  
11 exposure required to cause cancer has occurred with  
12 respect to any of the plaintiffs in this case, do  
13 you?

14 MR. KOVACICH: Objection. That's been asked and  
12:09 15 answered.

16 THE WITNESS: Yeah, I already answered that  
17 question I think in a previous -- so I don't know  
18 what you want me to answer here. I mean, I've  
19 already answered that question.

12:09 20 BY MR. RAUCHWAY:

21 Q Well, answer it again.

22 A Well, state the question again, then.

23 Q Do you know whether the type and level of  
24 exposure required to cause cancer has occurred with  
12:10 25 respect to any of the plaintiffs in this case?

1 A No, I don't.

2 Q Do you even know whether that type and level  
3 of exposure is possible with respect to these  
4 chemicals for the plaintiffs in this case?

12:10 5 A I already told you I'm not a toxicologist.  
6 I'm not a doctor. You asked me if I was a doctor.  
7 That's not in my realm or scope of view of what I'm  
8 doing here. I don't -- I can't answer that question.  
9 You need to ask a doctor or a toxicologist or a risk  
12:10 10 assessment person.

11 Q The reason I'm asking this question, sir, is  
12 because you expressed opinions about known health  
13 effects and known carcinogens.

14 MR. KOVACICH: Objection. That's not a  
12:10 15 question. That's just argumentative. And he's  
16 already explained the scope of his opinions set forth  
17 on this page of his report at length.

18 BY MR. RAUCHWAY:

19 Q What is the source of your information under  
12:10 20 opinion 2 on page 9?

21 A The source of my information was looking at  
22 a web page for the Department of Health and Human  
23 Services. EPA has arsenic listed, you know, as a  
24 carcinogen. The ATSDR, Agency for Toxic Substances  
12:11 25 and Disease, I believe that's correct, has fact

1 sheets and other information available that provides  
2 that kind of determination.

3 Q So you did research on the web?

4 A I did some research on the web taking a look  
12:11 5 at some of the documentation available from the  
6 agencies, yes.

7 MR. RAUCHWAY: I'm going to mark this as our  
8 first exhibit here.

9 (Deposition Exhibit 1 was  
12:12 10 marked for identification and is  
11 attached hereto.)

12 BY MR. RAUCHWAY:

13 Q All right. What we've marked as Exhibit 1,  
14 Mr. Kane, is a printout from the American Cancer  
12:12 15 Society's web page which includes some data from the  
16 International Agency for Research on Cancer and other  
17 sources.

18 Is this one of the web pages that you looked  
19 at when you did your research online for your  
12:12 20 opinions on page 9 there?

21 A No. I don't recall seeing this.

22 Q Okay.

23 A Unh-unh.

24 Q Under the heading "What is a carcinogen"  
12:13 25 there, there's a sentence in the last paragraph that



1 says "Carcinogens do not cause cancer in every case  
2 all of the time."

3 Do you see that?

4 A I see that, yes.

12:13 5 Q Do you agree with that statement or do you  
6 not know one way or the other whether that's true?

7 A I don't know if that's true or not, no.

8 Q Okay. How about with respect to the second  
9 sentence, "Substances labeled as carcinogens may have  
12:13 10 different levels of cancer causing potential."

11 Do you agree with that statement?

12 A I don't know.

13 Q And then if you look on the third page of  
14 the exhibit there, there's a heading that says, "Some  
12:13 15 important points about the IARC and NTP lists" here.

16 Do you see that?

17 A At the bottom of the page, yes, uh-huh.

18 Q And the IARC is one of the sources you  
19 relied on, right?

12:14 20 A Uh-huh.

21 Q Okay. And the last -- first sentence of the  
22 last paragraph there says, "The lists themselves say  
23 nothing about how likely it is that an agent will  
24 cause cancer."

12:14 25 Do you see that sentence?

1 A I do see that, yes.

2 Q And do you agree with that, disagree with  
3 that or do you have no basis?

4 A I don't know. I don't have a basis about  
12:14 5 that statement.

6 Q And then if you look on page 4 there, at the  
7 top of the page it says, "Even if a substance or  
8 exposure is known or suspected to cause cancer, this  
9 does not necessarily mean that it can or should be  
12:15 10 avoided at all costs."

11 Do you see that sentence?

12 A I do see that.

13 Q Do you agree or disagree or have no basis to  
14 opine on that?

12:15 15 A No basis.

16 Q And the example they give is ionizing  
17 radiation. Do you know what that is?

18 A I don't know in the context of this sentence  
19 what they are talking about, whether they mean sun or  
12:15 20 if they mean from a -- some kind of a medical  
21 equipment or something.

22 Q Okay. Same page there has the  
23 "International Agency for Research on Cancer List of  
24 Known Human Carcinogens," and that's the same list  
12:15 25 that you relied on in your report, right? Known

1 human carcinogens?

2 A Yes, uh-huh. Yeah, that is likely where I  
3 saw arsenic listed.

4 Q Okay. And, in fact, arsenic appears on that  
12:16 5 page about halfway down, doesn't it?

6 A I see it, arsenic and inorganic arsenic  
7 compounds, yes.

8 Q All right. And that's what you are  
9 referring to in your report when you say this is a  
12:16 10 known human carcinogen?

11 A I believe so, yes.

12 Q Okay. Also on that list is alcoholic  
13 beverages?

14 A Oh, yeah. Uh-huh, yeah, I see that.

12:16 15 Q Yeah.

16 And above that is aflatoxins, do you know  
17 what that is?

18 A I don't know what those are, no.

19 Q On the next page you have cadmium at the top  
12:16 20 of the page. That's one of the things that you  
21 listed, right?

22 A That's correct.

23 Q Also on that list is diesel engine exhaust,  
24 right?

12:16 25 A Where is that?

1 Q About halfway down.

2 A Oh, engine exhaust diesel. I see that, yes.

3 Q Like the exhaust that will be created from  
4 the trucks that you are proposing to send full of  
12:16 5 dirt from Opportunity and Crackerville to Spokane?

6 A Might be. I don't know.

7 Q Estrogen's also on that list, isn't it?

8 MR. KOVACICH: Objection. That list speaks for  
9 itself and this is beyond the scope of Mr. Kane's  
12:17 10 testimony.

11 THE WITNESS: It's on the list. I don't know  
12 what you are driving at.

13 BY MR. RAUCHWAY:

14 Q It's on the list that you referred to in  
12:17 15 your report when you were pointing out that these are  
16 known human carcinogens?

17 THE VIDEOGRAPHER: Pardon me, your mic fell off.

18 THE WITNESS: Is that okay?

19 Well, it doesn't say just estrogen. It says  
12:17 20 "Estrogen therapy," "Estrogen/Progesterone therapy."  
21 So actually what you just said is incorrect. "Oral  
22 contraceptives." So, I don't know.

23 BY MR. RAUCHWAY:

24 Q Okay. Look at page 6.

12:18 25 A Okay. I'm on page 6.

1 Q Okay. Leather dust is on that list, a list  
2 of known human carcinogens that you referred to in  
3 your report?

4 A Uh-huh. I see leather dust, yes.

12:18 5 Q And mineral oils?

6 A I see that, yes.

7 Q Yeah. If you turn to the next page, you see  
8 salted fish is on that list?

9 A Yes, it is. Yes, there it is. Chinese  
12:18 10 style, I don't know what that means.

11 Q Solar radiation is on that list?

12 A I see that, yes.

13 Q And wood dust also?

14 A Wood dust, I see that, too.

12:18 15 Q And these are all known human carcinogens  
16 according to the IARC, right?

17 A That's what the list is, yes.

18 Q Just like arsenic and cadmium that you  
19 pointed out in your report?

12:18 20 A That's correct, yes.

21 Q Anyone who did some Internet research could  
22 have determined the same facts that you provide in  
23 your report here on page 9 under heading 2; isn't  
24 that right?

12:19 25 MR. KOVACICH: Objection; vague and

1 argumentative.

2 THE WITNESS: I don't know what you mean by  
3 "anyone" under the context of what we're talking  
4 about. I wrote the report, I already told you that.  
12:19 5 I did some Internet searching. I took a look at  
6 ATSDR fact sheets. I already said that.

7 BY MR. RAUCHWAY:

8 Q You don't claim any special expertise other  
9 than reporting these facts that you found by looking  
12:19 10 at those lists?

11 A That's correct, yeah. Arsenic is a known  
12 carcinogen, that's true.

13 MR. KOVACICH: We're going to take a lunch break  
14 at some point?

12:20 15 MR. RAUCHWAY: Yeah. Why don't we go off and  
16 talk about that.

17 THE VIDEOGRAPHER: Going off the record. The  
18 time now is approximately 12:20 p.m.

19 (Lunch taken.)

01:03 20 THE VIDEOGRAPHER: Going back on the record.  
21 The time now is approximately 1:13 p.m.

22 BY MR. RAUCHWAY:

23 Q Mr. Kane, before the break, I was asking you  
24 some questions about your decision to design a remedy  
01:13 25 that would clean up these properties to background.

1 Do you recall that?

2 A Yes. We were discussing that, yes.

3 Q Okay. Do you express any opinion in this  
4 case that a cleanup to background is necessary to  
01:13 5 restore any lost uses on the plaintiffs' property?

6 A Could you define what you mean by "lost  
7 uses"?

8 Q Sure.

9 If the groundwater that they're using for  
01:13 10 drinking water is not clean and you clean it up to a  
11 drinkable level, then you are restoring the lost use  
12 of a drinking water well on the property.

13 A Okay.

14 Q That's the sense in which I'm using it.

01:14 15 A Okay. All right.

16 I'm recalling some conversations with people  
17 about a reticence to do any kind of soil -- should I  
18 say work in the soil. I mean, people talked about  
19 bringing in clean topsoil to plant gardens, that kind  
01:14 20 of thing. So I think there is a -- from my  
21 discussions with some of them a reticence to be able  
22 to just use the soil on the property for planting  
23 vegetables or something like that because of their  
24 concern about elevated metals concentrations, some  
01:15 25 discussions about that kind of thing.

1           So in that sense, yeah, there is a use that  
2           may be for some of them limited because of the  
3           concentrations of the metals in the near surface  
4           soil.

01:15 5           Q    Okay. I understand that some of the  
6           plaintiffs have expressed that reticence, to use your  
7           word.

8           But my question was a little bit different,  
9           and my question is whether you are expressing the  
01:15 10          expert opinion in this case that your cleanup to  
11          background is necessary to restore lost uses, uses  
12          that can't be made of the property in its current  
13          condition?

14          MR. KOVACICH: I'm going to object. It's the  
01:15 15          same question. I think he did answer it.

16                You can answer.

17          THE WITNESS: It is the same answer. I mean,  
18          from my point of view, yes. I mean, by the  
19          establishing the entire site back to a background  
01:16 20          concentration provides the user/owner of the property  
21          to be able to do whatever they want at will, plant a  
22          garden or till their garden or till their soil and  
23          replant shrubs or whatever it is that they want to do  
24          or even use the shallow water, groundwater for other  
01:16 25          uses if they choose, yes.



1 BY MR. RAUCHWAY:

2 Q Well, the distinction I was trying to draw  
3 is whether your opinion is that that restoration is  
4 necessary and not whether after your restoration the  
01:16 5 plaintiffs' fears will be alleviated.

6 Do you understand the distinction there?

7 A I believe so, yeah. And what I stated was  
8 that by bringing these properties back to background  
9 concentrations pretty much leaves it completely open  
01:16 10 for people to do whatever they want to do on those  
11 properties without a concern for elevated  
12 concentrations of metals either impacting or causing  
13 them to be able to not do what they want to do on  
14 their property.

01:17 15 Q Are you expressing the opinion that these  
16 properties cannot be used for vegetable gardening and  
17 that sort of use right now?

18 A From my experience, what people have done is  
19 imported clean topsoil for things like a vegetable  
01:17 20 garden where they're actually consuming things. I  
21 didn't see a lot of gardens at -- being used that  
22 were just on the ground. There may have been some,  
23 but the ones that I saw seemed to be smaller, raised  
24 beds, that kind of thing, imported soil. That I was  
01:17 25 told about anyway.

1           Now, I don't know every property because I  
2       didn't talk to every property owner while I was  
3       there, but certainly I saw that as a concurrent  
4       theme, the kind of a lack of use of their property;  
01:17 5       keeping it vegetated, keeping the grass there, not  
6       really doing much with it other than that.

7           Q     Whether the plaintiffs are or are not making  
8       that use of their property in any given instance, are  
9       you expressing the opinion that the properties cannot  
01:18 10      be used for that purpose in their current condition?

11          A     I'm struggling with the question in really  
12      understanding what your question is, and I would like  
13      to ask if you could explain in some detail what it is  
14      you are asking, because I keep thinking to myself  
01:19 15      I've answered your question so I think I must be  
16      missing your -- the intent of your question.

17          Q     Well, I don't know that I can make it any  
18      simpler than I have.

19                I mean, I'm just asking you whether you're  
01:19 20      expressing the opinion that these properties cannot  
21      be used for these purposes that you identified,  
22      whether that's a health reason or simply things won't  
23      grow or some other reason. Or if you are just  
24      reporting what people have complained about and  
01:19 25      saying that your remedy will address that.

1           A    Well, my remedy will address it by removing  
2 concentrations of these metals above background.

3           Q    Okay. Did you understand the distinction  
4 that I just made in my question?

01:19 5           A    Probably not.

6           Q    Okay.

7           A    Yeah. I'm --

8           Q    Have you done an analysis of whether these  
9 properties are appropriate for use in vegetable  
01:20 10 gardening?

11          A    No, I have not done that.

12          Q    You have no opinion that if you did grow  
13 vegetables on these properties, it would be unsafe or  
14 unhealthy, do you?

01:20 15          A    I haven't made that study, no.

16          Q    And you haven't made any study of whether  
17 things simply won't grow on this property by virtue  
18 of some chemical composition in the soil?

19          A    That's right. And I haven't made that  
01:20 20 distinction, that's right.

21          Q    And you referred to the shallow groundwater  
22 a moment ago and that if it were restored people  
23 could use it, right?

24          A    They might.

01:20 25          Q    No one is drinking the shallow groundwater

1 that you propose to address through your restoration  
2 remedy, right?

3 A Not that I'm aware of. That is my  
4 understanding, that people are drinking water that is  
01:20 5 deeper in the aquifer, yes.

6 Q And the water that is deeper in the aquifer  
7 is not contaminated, right?

8 A It has background concentrations of the  
9 metals that appear to be below.

01:20 10 Q Is that different from not being  
11 contaminated?

12 A Well, my definition of contaminated here in  
13 this case is background, and we're using -- or we've  
14 looked at the deeper aquifer that has low and  
01:21 15 sometimes even non-detectible concentrations of some  
16 of these metals. So from that point of view, that  
17 would be not contaminated groundwater, meaning my  
18 definition being establishing background not above  
19 background concentrations.

01:21 20 Q Do you know of any use that people are  
21 making of the shallow groundwater?

22 A I am not aware of anybody using the shallow  
23 groundwater, unless someone might be using it for  
24 irrigation or something like that. But I did not --  
01:21 25 I did not specifically observe that, nor do I

1 remember someone telling me they were doing that.

2 I thought there were a couple people who  
3 said that they used to have some shallow wells that  
4 they used but they had discontinued them. But I  
01:22 5 would have to go back to my notes about that.

6 Q Do you express the opinion in this case that  
7 the shallow groundwater is inappropriate for  
8 irrigation use in its current state?

9 A I found some concentrations of the shallow  
01:22 10 groundwater in Opportunity and Crackerville to be at  
11 concentrations that were above our calculated  
12 background.

13 Q Okay. But I asked you whether you expressed  
14 the opinion that shallow groundwater is inappropriate  
01:22 15 for irrigation use in its current state, not whether  
16 there is some measurable quantum of metals above  
17 background in the water.

18 A There were, in particular, arsenic  
19 concentrations in the shallow groundwater in portions  
01:23 20 of Opportunity that were above our calculated  
21 background where I would be of the opinion it would  
22 not be wise to use that for irrigation or drinking or  
23 anything like that.

24 Q We're not talking about drinking here.  
01:23 25 We're talking about irrigation because these people

1 have drinking water wells in the lower part of the  
2 aquifer, right?

3 A Uh-huh.

4 Q Why would it not be wise to use the water  
01:24 5 for irrigation in its current state?

6 A It --

7 Q Do you need me to repeat the question,  
8 Mr. Kane?

9 A Yes. Repeat the question again, please.

01:25 10 Q You said that you would be of the opinion  
11 that it wouldn't be wise to use the shallow  
12 groundwater for irrigation. And I'm wondering if you  
13 have some expert opinion as to why it wouldn't be  
14 wise to use the water for irrigation in its current  
01:25 15 state.

16 A Well, some of the wells are above background  
17 concentration of arsenic and other heavy metals.  
18 It's possible that could have an impact on the --  
19 some of the vegetation they might have been using,  
01:25 20 but that would be conjecture on my part. I haven't  
21 taken a look at that or studied that.

22 Q If you look at your report, again, there's a  
23 page -- it doesn't have a heading on it, but it's the  
24 list of properties before the data summaries.

01:26 25 A Which table are you looking -- oh, that one.

1       Yeah, the columns where it's -- the properties are  
2       added up by acre feet, cubic feet yards and tons?

3           Q     Right.

4           A     Yeah, uh-huh.

01:26 5           Q     And is that the entire list of properties  
6       that you used to arrive at your opinions in this  
7       case?

8           A     Yes. It is for the opinions in this case.

9           Q     Did you purposely exclude purely  
01:27 10       agricultural properties from that list?

11          A     No. We didn't exclude -- it should be every  
12       property owner, every property.

13          Q     Well, for example, there's a property, I  
14       believe it's owned by Ms. Silzly, that's by itself  
01:27 15       about 300 acres and it's just a pasture property.

16                 Do you intend to include that? Or did  
17       you -- I should say did you purposely exclude that or  
18       did you not include it for some other reason?

19          A     No, no. It was not purposefully excluded.  
01:27 20       Nothing was.

21          Q     Have you ever worked on a site where there's  
22       a two-foot removal of agricultural -- of the soil on  
23       agricultural properties?

24          A     I can't recall that I have, no.

01:28 25          Q     Have you ever heard of a site where there

1 was a two-foot removal of soil on purely agricultural  
2 property?

3 A Well, it's my understanding there has been  
4 some soil removal in the South Opportunity area that  
01:28 5 is an agricultural area. So in that case, yes.

6 Q And it's your understanding that that  
7 involved a two-foot removal, removal of the top two  
8 feet of the soil?

9 A I don't recall the actual depth of the  
01:28 10 removal.

11 Q So as you sit here today, can you think of  
12 any site, whether you've worked on it or not, that  
13 involved the removal of the top two feet of soil of  
14 purely agricultural property?

01:29 15 A I can't recall any site like that right now,  
16 no.

17 Q You testified earlier today that part of  
18 your contemplated remedy was jacking up the houses in  
19 Opportunity and Crackerville and removing the two  
01:29 20 feet of soil underneath them.

21 Do you recall that?

22 A Yes, I do, uh-huh.

23 Q Have you ever worked on a site where that  
24 remedy was employed?

01:29 25 A I have, yeah. I worked on sites where we



1       jacked up houses to remove contaminated soil from  
2       beneath the house.

3               Q     Which sites -- site or sites was that?

4               A     One site was here in Seattle, in west  
01:29 5       Seattle where it had a leaky tank next to the  
6       building, and we excavated beneath the house and then  
7       jacked up the house and put in pin piles to hold the  
8       house in place and then excavated beneath the house.

9               I'm working on a site right now where we're  
01:30 10      doing that on a commercial structure, reinforcing it  
11      and then excavating underneath the building.

12              Q     Are those the only two or are there others?

13              A     Another commercial structure I worked on in  
14      Seattle where we did the same thing. We held the  
01:30 15      building up and excavated beneath the building. Same  
16      tank issue. I had to pull a tank out and remove some  
17      contaminated soils.

18              Those are the three I can recall right now.

19              Q     In any of those instances did it involve  
01:30 20      removing the entire layer of soil for the whole  
21      footprint of the structure?

22              A     The house in west Seattle was certainly  
23      three quarters of the structure, not the full  
24      structure but a good portion of it, almost the entire  
01:31 25      structure. The other two were more located isolated

1       pockets beneath the buildings.

2           Q     Have you informed any of the plaintiffs in  
3       this case that your remedy contemplates jacking up  
4       their homes and removing the soil underneath them?

01:31 5           A     No. I haven't talked about that.

6           Q     With respect to your proposed groundwater  
7       remedy, I think you testified earlier today that you  
8       contemplate one large PRB wall for Opportunity and  
9       two smaller PRB walls for Crackerville; is that  
01:32 10      right?

11          A     Yes. At this time, that's what I'm  
12      envisioning, yes.

13          Q     When you say "at this time," are you  
14      contemplating revising that opinion?

01:32 15          A     Only that in the cost estimate you will  
16      notice there is a provision for a pilot study and  
17      part of that pilot might identify maybe one more  
18      location. So that's why I'm just qualifying that  
19      statement. I don't know. But at this time, that's  
01:32 20      what we're looking at, yeah.

21          MR. RAUCHWAY: Let's mark our second exhibit  
22      here. This is the map that I think I mistakenly  
23      handed you earlier.

24                   (Deposition Exhibit 2 was  
01:33 25      marked for identification and is

1 attached hereto.)

2 BY MR. RAUCHWAY:

3 Q Okay. Do you recognize the area that's  
4 depicted on the map that we have marked as Exhibit 2,  
01:33 5 Mr. Kane?

6 A Yes. It looks like the town of Opportunity  
7 and a portion of South Opportunity.

8 Q Does -- as best you can tell from looking at  
9 this map, does it encompass the properties owned by  
01:33 10 the plaintiffs in this case that are the subject of  
11 your opinions?

12 A Yes. I believe it does, yes.

13 Q Can you mark on Exhibit 2 for me the  
14 locations that you contemplate for these PRB walls?  
01:33 15 Here, I will give you your choice of pens there.

16 A Okay. Estimated locations?

17 Q As best you can do.

18 A Best I can. Okay.

19 Do you want me to give it to you?

01:34 20 Q Yes. Can I just see that one sheet there  
21 that we marked as Exhibit 2?

22 A Sure, uh-huh.

23 Q And just so I'm clear these two walls are --  
24 excuse me.

01:34 25 These two walls here are meant to be

1 contiguous or are those separate sections of the same  
2 wall?

3 A This one is more like this, excuse me. I  
4 think this one is a little -- I'm right. And this  
01:35 5 one, there you go. So that's the three. And this  
6 one is the same wall. And yeah, there is a gap there  
7 at the Brundy Creek.

8 Q Thank you.

9 Can you also indicate on Exhibit 2 the  
01:35 10 direction that you believe the groundwater is flowing  
11 in that area or those areas?

12 A Do you want to see that?

13 Q Please.

14 A Let me just put "GW."

01:36 15 Q So you understand groundwater to be flowing  
16 in the north/northeasterly direction in the South  
17 Opportunity area?

18 A Yes. Yeah.

19 Q And the idea being that these walls will  
01:36 20 intercept contaminated groundwater flowing in from  
21 the south and prevent them from getting into the  
22 communities where the plaintiffs live; is that fair?

23 A Exactly. Yeah, the locations where they  
24 live, yeah.

01:36 25 Q Is it your understanding that plaintiffs

1 actually intend to perform this groundwater remedy  
2 with the money they are awarded in this case, if  
3 there is any?

4 A Could you say that question -- explain in  
01:37 5 more detail what you mean.

6 Q Sure.

7 Is it your understanding that plaintiffs  
8 actually intend to perform this groundwater remedy  
9 with the proceeds of any award they obtain in this  
01:37 10 case?

11 A That's my understanding, yeah.

12 Q Looking at Exhibit 2 here, there's a legend  
13 there that refers to land ownership. And as I  
14 understand it, the areas where you've marked your  
01:37 15 proposed PRB walls are on private land; is that  
16 right?

17 A That's correct, yeah.

18 Q And is that land owned by any plaintiff in  
19 this case?

01:37 20 A I think some of the land -- some of it is  
21 located on plaintiffs' land, yes, in Crackerville  
22 and in the area here. Along Highway 1 I don't  
23 believe it's owned by any of the plaintiffs.

24 Q Okay. So for the portions of the  
01:38 25 Crackerville walls that are on non-plaintiff owned

1 land and for the PRB wall for Opportunity, do you  
2 know who owns that land where your proposed wall  
3 would be built?

4 A Not right now I don't know who owns it, no.

01:38 5 Q And does that follow that you haven't made  
6 any arrangements with the owner of that land to allow  
7 to dig your trench and install your wall there?

8 A I haven't made any discussions or  
9 conversations about that at this time, that's right.

01:38 10 Q And if the owner or owners of that land  
11 refuse to sell and refuse you access, there's no way  
12 you can build those walls that you contemplate,  
13 right?

14 A No. I don't think that's the case. I think  
01:38 15 that it's possible to negotiate easements with  
16 people, especially along the highway, with the state,  
17 state-owned highway. So I wouldn't say it's not  
18 possible.

19 Q Well, when I said "refuse you access," I  
01:39 20 included in that granting you an easement. So let me  
21 ask the question again.

22 If the owner or owners of that land refuse  
23 to sell and refuse you access, there's no way you can  
24 build the PRB walls that you contemplate as part of  
01:39 25 your remedy, right?

1 MR. KOVACICH: Objection. It's the same  
2 question and he answered it already.

3 THE WITNESS: Yeah, I would just have the  
4 same -- I mean, it's hypothetical and I would just  
01:39 5 answer it the same way. I think easements could be  
6 negotiated with people.

7 BY MR. RAUCHWAY:

8 Q Those easements you are referring to are  
9 hypothetical, right?

01:39 10 A Yes, I haven't talked -- I told you I  
11 haven't talked to anybody about any easements or  
12 anything like that at this point, yeah.

13 Q And if those private landowners don't grant  
14 you an easement, you can't build your walls, can you?

01:40 15 MR. KOVACICH: Objection; asked and answered,  
16 calls for speculation.

17 THE WITNESS: I would answer the same way. I  
18 think they're -- I think arrangements could be made  
19 where perhaps the wall might have to be moved perhaps  
01:40 20 with a slight design change perhaps. There's always  
21 a possibility that something that would have to be  
22 figured out during further work and pilot study work  
23 at the area -- in the area, uh-huh.

24 BY MR. RAUCHWAY:

01:40 25 Q So if you can't get easements to construct

1 your walls on private land, you will have to change  
2 the design that you currently contemplate?

3 A Well, then, we may have to go back and  
4 actually put some of the walls directly on  
01:40 5 plaintiffs' properties, for example, in Crackerville.  
6 There are a couple of them are adjoining parcels. So  
7 we may have to create more walls if that's the case  
8 and might end up being the same length, maybe just  
9 more of them.

01:41 10 Q You're not aware of any currently existing  
11 property rights --

12 A Sorry.

13 Q It's okay. It happens. I'll start over.

14 A Yeah.

01:41 15 Q You are not aware of any currently existing  
16 property rights that the plaintiffs have to build the  
17 walls as you've currently designed them; is that  
18 true?

19 A Property rights, so could you explain what  
01:41 20 you mean by their property rights meaning --

21 Q Sure.

22 Ownership of that property, easements on  
23 that property, access agreements to that property,  
24 any right to enter the property owned by somebody  
01:41 25 else --



1 A Uh-huh.

2 Q -- and build the walls that you contemplate?

3 A Yeah. Not at this time, that's right. That  
4 is correct.

01:41 5 Q Do you believe that the groundwater in South  
6 Opportunity is currently moving towards the  
7 properties owned by plaintiffs?

8 A That is my understanding from reports I've  
9 read and my own work, yes.

01:42 10 Q And do you believe that that groundwater is  
11 currently carrying with it contaminants towards the  
12 properties owned by plaintiffs?

13 A Yes, I do.

14 Q Are you aware that there are a line of  
01:42 15 sentinel wells or point of compliance wells in that  
16 area?

17 A I am aware of a number of those in South  
18 Opportunity you mean?

19 Q Yes.

01:42 20 A Yeah, I'm aware of those wells, yes.

21 Q And have you examined the results from those  
22 sentinel wells?

23 A I've looked at some of them, not I don't  
24 believe all of them.

01:43 25 Q And do you believe that those results

1 indicate that the -- some kind of contaminated  
2 groundwater plume is moving towards the plaintiffs'  
3 properties?

4 A Well, from the work that I've done and  
01:43 5 reviewed, particularly the Pioneer study that was  
6 similar to our approach, we're seeing, I think, the  
7 shallow aquifer contaminated plume that's located in  
8 South Opportunity is and has migrated onto the  
9 Opportunity -- town of Opportunity to the north of  
01:43 10 Highway 1.

11 Q Well, I was asking you specifically about  
12 the results from the sentinel wells that were drilled  
13 in the South Opportunity area precisely for the  
14 purpose of determining whether contaminated water was  
01:43 15 moving towards the town of Opportunity, and I think  
16 you said you looked at some of the results from those  
17 wells.

18 A Uh-huh.

19 Q And based on the results of those wells --

01:44 20 A Uh-huh.

21 Q -- that you've looked at, do you believe  
22 that there's a plume of contaminated groundwater  
23 moving north/northeast towards Opportunity?

24 MR. KOVACICH: Objection; asked and answered.

01:44 25 THE WITNESS: Depends how you -- the way that I

1 define contaminated or what I'm calling contaminated  
2 is different, I think, than what you are calling  
3 contaminated. I don't want to put words in your  
4 mouth. But I'm not saying contaminated is, for  
01:44 5 example, arsenic above ten parts per billion the  
6 drinking water level. I'm saying the concentrations  
7 above background, and that's different and that's  
8 what I'm seeing.

9 BY MR. RAUCHWAY:

01:44 10 Q You have a sentence on page 6 of your report  
11 at the end of the first paragraph there that says,  
12 "Our findings are contrary to the findings shown in  
13 figure 4-16 and discussed in section 7.4 of the  
14 ARWW&S OU Final Site Characterization Report prepared  
01:45 15 on behalf of Arco."

16 A Yes.

17 Q Do you see that sentence?

18 A Uh-huh, I do.

19 Q Okay. When you say "our findings," whose  
01:45 20 findings are you talking about?

21 A Kane Environmental's.

22 Q Okay.

23 A Yeah.

24 Q Are those your findings?

01:45 25 A Kane Environmental's findings are work that

1 Kane Environmental did.

2 Q Who else are you referring to when you say  
3 "Kane Environmental" other than yourself?

4 A Well, I did have other, you know, employees  
01:45 5 out there working, but it's the company's position  
6 of -- the company's work that did fieldwork and  
7 collected samples. So that's why I said Kane  
8 Environmental. It wasn't just me out there alone.  
9 So not just me, but it's my opinion as the expert,  
01:45 10 yes.

11 Q You are the one who's going to testify at  
12 trial, right, not Kane Environmental?

13 A Yeah. Right. Sure. Of course. If that's  
14 what you mean, yes.

01:45 15 Q Let me show you that what I think is the  
16 document you are referring to and ask you a couple  
17 questions about that.

18 3?

19 THE REPORTER: Yes, 3.

01:46 20 (Deposition Exhibit 3 was  
21 marked for identification and is  
22 attached hereto.)

23 BY MR. RAUCHWAY:

24 Q Is this Exhibit 3 here an excerpt of the  
01:46 25 document you are referring to there on page 6 of your

1 report?

2 A Let's see. Final site characterization.

3 Yes, it is. The word "final" is down here, yes. So  
4 this is it, yeah.

01:46 5 Q And you write in your report that this site  
6 characterization was prepared on behalf of Arco but,  
7 in fact, it's an EPA report, isn't it?

8 A That is correct. It is EPA prepared by CDM.  
9 That's true.

01:47 10 Q So it wasn't prepared on behalf of Arco?

11 A It says it was prepared for the U.S. EPA,  
12 that's correct.

13 Q So when you say that your findings are  
14 contrary to the findings in this report, you are  
01:47 15 saying your findings are contrary to EPA's findings,  
16 not Arco's, right?

17 A Well, to this report, that's correct. Now,  
18 whether or not -- yeah, that would be true, yes.

19 Q Can you explain to me how your findings are  
01:47 20 contrary to EPA's findings with respect to  
21 figure 4-16 in section 7.4 of this report?

22 A Yeah. The -- under section 7.4, "Town of  
23 Opportunity," the second paragraph, the sentence,  
24 "The line between Mill Creek type water and Willow  
01:49 25 Creek type water was refined and found to exist south

1 of Highway 1 approximately..." "A portion of the  
2 water was found to exist south of Highway 1  
3 approximately alighted with Willow Glen Gulch."

4 Yeah, so what I was objecting to and this is  
01:49 5 that -- or disagreeing with is that it extended  
6 beyond south of Highway 1 and that from our work we  
7 believe it actually extends north of Highway 1.

8 Q Anything else in section 7.4 there that you  
9 disagree with?

01:49 10 A The actual line, the red line in figure 4.16  
11 is -- my understanding is based on a 10 part per  
12 billion number, and we are proposing that above  
13 background would actually extend that boundary  
14 further to the north.

01:50 15 Q That's because you are defining  
16 contamination for purposes of this case as anything  
17 over background, right?

18 A That's correct, uh-huh.

19 Q Anything else?

01:50 20 A The statement on the second page 7.6 under  
21 the heading "More Dilution," the main paragraph, it  
22 says, "This water has been found to be uncontaminated  
23 by arsenic," where it says throughout Opportunity,  
24 and again we disagree with that again by definition  
01:51 25 of contamination. So from our point of view above

1 background, it is present there.

2 Q Again, because your definition of the word  
3 "contaminated" differs from the EPA's definition of  
4 "contaminated"?

01:51 5 A My definition is above background,  
6 calculated background concentration.

7 Q And that's not the definition they are using  
8 in this report?

9 A I do not believe they are, no.

01:52 10 Q Anything else?

11 A Well, it's the same definition issue about  
12 the deeper water being used for domestic use. They  
13 say it's uncontaminated. We would just say it's at  
14 background conditions. So again, it's just a  
01:52 15 definition.

16 We would agree with the first statement  
17 under "Hydraulic diversion of upgradient  
18 contamination. Shallow groundwater south of Highway  
19 1 is contaminated to a varying degree by arsenic."  
01:52 20 Again, we see that as above background but for them I  
21 believe they are saying above 10 parts per billion.

22 Q I'm only asking you about the parts that you  
23 disagree with.

24 A Okay. The one thing I would be suspect of  
01:53 25 would be that the statement, "Data from shallow well

1 OD-3S confirms that the drain is effective in  
2 removing arsenic from the groundwater in the  
3 southeast corner of Opportunity."

4 From our data results, we're still seeing  
01:54 5 concentrations of arsenic in the southeast portion of  
6 Opportunity, so I would disagree with that statement.  
7 But again, they may be talking about -- well, they  
8 are talking again about concentrations above 10 parts  
9 per billion.

01:54 10 And then I think the general statement of  
11 them saying at the end of the last paragraph in this  
12 section 7.4, "These three factors account for the  
13 overall lack of arsenic in groundwater in  
14 Opportunity." I would disagree with that that, in  
01:54 15 fact, there is no lack of arsenic in the groundwater.  
16 There is significant concentrations of arsenic in  
17 groundwater -- in the shallow groundwater in  
18 Opportunity.

19 That's my review.

01:55 20 Q Okay. Have we covered it?

21 A Yes, I think so.

22 Q All right. Let's use that last statement as  
23 an example.

24 That's one of the conclusions in this report  
01:55 25 that you disagree with, right? That these factors



1 account for an overall lack of arsenic in groundwater  
2 in Opportunity?

3 A Well, the three factors of dilution, less  
4 arsenic loading and hydraulic diversion of upgradient  
01:55 5 contamination, yes.

6 Q Right.

7 A General statement, yes.

8 Q So you believe that with respect to that  
9 statement and the others you identified, you are  
01:55 10 right and EPA's wrong, right?

11 A Based on my data I'm disagreeing with their  
12 findings. I wouldn't just make a blanket statement  
13 saying I'm right and EPA is wrong. But based on the  
14 data that I've collected, it's different from what  
01:56 15 they are saying in their report.

16 Q And you intend to express the opinion at  
17 trial that with respect to that statement and the  
18 other ones you identified, that you're correct and  
19 EPA is incorrect?

01:56 20 A I'm going to express the statement of  
21 concentrations of these metals in the shallow  
22 groundwater are above background. I don't know  
23 whether EPA will agree with me or not.

24 Q Well, you make the point in your report here  
01:56 25 on page 6 that your findings are contrary to certain

1 findings in this EPA report, right?

2 A That's true, yes.

3 Q And that's an opinion you're expressing in  
4 this case?

01:56 5 A They're contrary to the findings, which  
6 means to the data.

7 Q Just the data or the conclusions from the  
8 data?

9 A The conclusions also, yeah. But conclusions  
01:56 10 are based on the data results.

11 Q So you are going to express expert opinions  
12 in this case that are contrary to the findings that  
13 EPA arrived at; is that right?

14 A Two different approaches. I don't -- I'm  
01:57 15 not really that concerned about what EPA has used in  
16 this case to establish what's considered contaminated  
17 or not contaminated. I'm looking at it from a  
18 background point of view and I'm seeing  
19 concentrations above background.

01:57 20 This is a case about trespass of elevated  
21 concentrations of arsenic and other metals above  
22 background concentrations that we've calculated, and  
23 EPA's opinion about that is not of concern to me,  
24 unless they agree with me.

01:57 25 Q Well, it was of concern to you enough to

1 specifically point out in your report that your  
2 findings are contrary to EPA's findings, right?

3 MR. KOVACICH: Objection. That's just argument.

4 THE WITNESS: Well, it's -- I think it's valid  
01:57 5 for me to make that statement that I'm finding that  
6 their findings are not the same as my findings. I'm  
7 just making a statement that what Kane Environmental  
8 found, what I'm testifying to is contrary to what's  
9 in their report. I think that's a statement of fact.

01:58 10 BY MR. RAUCHWAY:

11 Q And that's one of the expert opinions you  
12 intend to offer at trial in this case?

13 A If not the -- certainly the intent of it.  
14 The exact wording I may say differently, but  
01:58 15 certainly my findings are different than what EPA  
16 found, yes.

17 Q You understand that plaintiffs' properties  
18 are located on a Superfund site?

19 A In an operable unit of a Superfund site, I  
01:59 20 believe, yeah, it's my understanding.

21 Q Do you have authorization from EPA to  
22 perform the soils remedy that you contemplate in this  
23 case?

24 A I have not talked to EPA about my soils  
01:59 25 remedy.

1 Q Do you have authorization from EPA to  
2 perform the soils remedy that you contemplate in this  
3 case?

4 A I wouldn't because I haven't talked to them  
01:59 5 about it.

6 Q Do you have authorization from EPA to  
7 perform the groundwater remedy that you contemplate  
8 for this case?

9 A Same answer. Haven't talked to them, so I  
01:59 10 don't have authorization from them.

11 Q Are you aware that in the course of its  
12 regulatory deliberations, EPA rejected a soils remedy  
13 like the kind that you propose for the site?

14 A Actually, no. But maybe we're -- might be  
02:00 15 talking about two different things.

16 I mean, certainly the soil remedy that I'm  
17 proposing is very similar to the work that's been  
18 done in residential properties, Anaconda, Mill Creek,  
19 you know, the different -- the three different  
02:00 20 residential properties in Anaconda. I would --

21 Maybe I don't understand your question, but  
22 it's -- and in fact, Arco's even done some minor  
23 remedies, I believe, in Opportunity of a couple of  
24 yards, if my memory serves me right, of some soil  
02:00 25 removal.

1 Q So when you say -- excuse me.

2 A Maybe I don't understand your question, but  
3 the soil removal I'm talking about is the same that's  
4 been done in that area for the last 20 years.

02:01 5 Q Is there some part of this site where there  
6 was a blanket removal of the top two feet of any  
7 residential property?

8 A In the operable unit or in Opportunity?

9 Q In the operable unit. Let's start with  
02:01 10 that.

11 A I recall that there was some more excavation  
12 in Mill Creek other than just the upper foot, that it  
13 was more than just a couple feet even.

14 In Anaconda for the residential, I don't  
02:01 15 recall it went as deep as two feet but I thought that  
16 they went a foot and a half in some locations. So I  
17 would have to review that in the file, but certainly  
18 we're talking within a few inches anyway.

19 Q Those removals in Anaconda you are talking  
02:02 20 about, those were for certain portions of yards, not  
21 for the entire property, right?

22 A Yes, I think that's correct. Right, uh-huh.

23 Q No one jacked up any houses, for example,  
24 and removed soil under the houses. That didn't  
02:02 25 happen, right?

1 A I don't recall that happening, no.

2 Q So when you say these -- the remedy that you  
3 are proposing is similar to the one that was ordered  
4 by EPA --

02:02 5 A Uh-huh.

6 Q -- you are saying it's similar because they  
7 both involve the removal of soils?

8 A Yes. Residential soils, yeah, but they are  
9 not the same. I didn't say they were exactly the  
02:02 10 same. I said it's similar, backhoe or excavator  
11 removing soil from the site.

12 Q And EPA's remedy didn't involve trucking any  
13 of that soil to Spokane, did it?

14 A Not that I'm aware of. I don't believe so.

02:03 15 Q Are you aware that EPA considered lower  
16 action levels for arsenic than the 250 parts per  
17 million that it ultimately decided upon?

18 A I don't understand the question.

19 And when would that have happened also is  
02:03 20 part of my question back to you.

21 Q Well, unfortunately I'm not here to answer  
22 your questions. You are here to answer mine.

23 My question was are you aware that EPA  
24 considered lower action levels for arsenic than the  
02:03 25 250 parts per million that it ultimately decided

1       upon?

2           A     Well, I mean, I'm not supposed to ask you  
3       questions, but the reason I asked that is I haven't  
4       seen any reference to something lower than 250 in  
02:03 5       these documentation that I reviewed. So when I said  
6       when, I'm wondering if you are talking about in the  
7       1980s or something when they were evaluating clean-up  
8       levels. I'm having trouble understanding the context  
9       of the timeframe of what you are talking about.

02:03 10       Q     Well, do you understand that there was a  
11       regulatory process that preceded EPA's ultimate  
12       decision to set the action level for residential  
13       properties at 250 parts per million for arsenic?

14           A     I believe there was a lot of work done to  
02:04 15       figure that out, yes.

16       Q     And are you aware that at any point during  
17       that regulatory process, EPA considered lower action  
18       levels for arsenic than the 250 parts per million  
19       that it ultimately decided upon?

02:04 20       A     I was not aware of that.

21       Q     Are you aware that EPA considered action  
22       levels for arsenic within the range that you  
23       calculated it to be background for these properties?

24           A     I haven't seen anything in writing that I  
02:04 25       reviewed that shows that.

1 Q Are you aware that EPA rejected a PRB wall  
2 similar to the one that you are proposing to  
3 construct south of Opportunity?

4 A I am aware that there was a -- one of the  
02:04 5 alternatives that were proposed by EPA and then they  
6 decided not to do anything because of the technical  
7 impracticability of it. I said that word wrong.

8 Q Impracticability?

9 A Thank you.

02:05 10 Based, I believe, on a waiver of not doing  
11 anything.

12 Q When you said "a waiver of not doing  
13 anything," what do you mean?

14 A Meaning that they decided that because of  
02:05 15 the technical infeasibility of applying that remedy,  
16 there was a waiver placed on cleaning up the shallow  
17 groundwater so nothing was done.

18 Q So it's your understanding that nothing is  
19 being done with respect to the shallow groundwater in  
02:05 20 South Opportunity?

21 A It's my understanding there is some  
22 excavation going on in Blue Lagoon area and some work  
23 on the Yellow Ditch, but it's not -- I don't believe  
24 that anything is actually being implemented to remedy  
02:05 25 the shallow groundwater in the South Opportunity area



1 directly, you know, treating or somehow a remedial  
2 action of the groundwater water itself.

3 Q Are you aware that there's a contingency  
4 plan in place in the event that the sentinel wells  
02:06 5 that we discussed earlier show the migration of  
6 contaminated groundwater toward the town of  
7 Opportunity to revisit a remedy for shallow  
8 groundwater in South Opportunity?

9 A Yeah, I think that's just part of a ROD. I  
02:06 10 mean, any record of decision has an out where  
11 something has to be done if you don't follow -- if  
12 the concentrations increase. But again, we're  
13 talking about 10 parts per billion, not background.

14 Q When you say yeah, that's just part of a  
02:06 15 ROD, are you saying generally that's how you  
16 understand RODs to work or do you have specific  
17 knowledge of the contingency plan with respect to the  
18 shallow groundwater in South Opportunity that I  
19 referred to?

02:06 20 A Yeah, I'm aware that there can be additional  
21 work done if it doesn't meet the, in South  
22 Opportunity, the actual criteria established in the  
23 ROD. I understand that.

24 Q And --

02:07 25 A And at the same time that's typical of all

1 RODs.

2 Q And do you understand specifically that if  
3 EPA determines that the results from its monitoring  
4 wells show the contamination is moving north toward  
02:07 5 the town of Opportunity, they will specifically  
6 revisit some kind of groundwater remedy to protect  
7 the town?

8 A But that's based on 10 parts per billion,  
9 which is a different number than what we're  
02:07 10 evaluating. So in our case it's already there. It's  
11 already happening. It's happening now as we speak.

12 Q I understand the difference between your  
13 approach and EPA's approach.

14 A Uh-huh.

02:07 15 Q My question was are you aware of that  
16 specific contingency plan that EPA either put in  
17 place or is in the process of putting in place?

18 A Yeah, I remember reading about contingency  
19 plans for groundwater, yeah.

02:08 20 Q Do you think the current cleanup that EPA  
21 has ordered for plaintiffs' properties is inadequate?

22 MR. KOVACICH: Objection; it's vague.

23 THE WITNESS: Yeah, if you could dive into a  
24 little more detail, please, on your question. I'm  
02:08 25 not sure exactly what you are asking me.

1 BY MR. RAUCHWAY:

2 Q I'm not sure if I can make it any simpler  
3 than that.

4 A All right.

02:08 5 Q Do you think that these properties need to  
6 be cleaned up more than EPA has ordered them to be  
7 cleaned up?

8 A Yes, I do.

9 Q And you think that the EPA order to clean up  
02:09 10 should be improved upon?

11 A I think the property should be cleaned up to  
12 background concentrations, which would be an  
13 improvement from EPA standards, or a lower  
14 concentration of EPA standards.

02:09 15 Q Do you understand that if we get to the  
16 trial in this case, you may be called to testify in  
17 front of a jury?

18 A Yes, I do understand that, uh-huh.

19 Q And if that comes to pass, do you intend to  
02:09 20 offer your opinion to the jury that EPA's remedy for  
21 these properties is inadequate and instead your  
22 remedy should be required?

23 MR. KOVACICH: I'm going to object. The  
24 admissibility of anything relating to EPA's work or  
02:10 25 cleanup at this site will be the subject of a motion

1 in limine not relevant to the issues that will be  
2 tried, and what effect the court's treatment of that  
3 evidence has on Mr. Kane's testimony is something  
4 that he wouldn't be aware of until those rulings are  
02:10 5 made.

6 MR. RAUCHWAY: You are giving away your  
7 strategy, Mark.

8 MR. KOVACICH: Well, I think you see that one  
9 coming, don't you?

02:10 10 MR. RAUCHWAY: Yeah. A little bit of levity.

11 MR. KOVACICH: I mean, I guess my objection is  
12 just that I don't think it's fair for Mr. Kane to  
13 characterize what he might testify to in that regard  
14 because part of that subject matter may be excluded  
02:10 15 from evidence if it's not, you know, how that will  
16 come out. I'm not sure he would have any way of  
17 knowing that.

18 MR. RAUCHWAY: Okay.

19 MR. KOVACICH: But you can try to answer the  
02:10 20 question if counsel wants you to answer the question.

21 THE WITNESS: Yeah, I would rather not because  
22 I'm not sure exactly if I'm going to be answering  
23 something that's really pertinent, but --

24 BY MR. RAUCHWAY:

02:11 25 Q I'm guessing you would probably rather not

1 answer a lot of my questions, but that's not the  
2 standard.

3 A I don't mind.

4 Q And we don't need to argue objections, but I  
02:11 5 think, you know, no one knows what the judge is going  
6 to allow in or allow in this or any other case. So  
7 that's why discovery is broader and that's why my  
8 question to you is if we have a trial in this case do  
9 you intend to offer the opinion to the jury that  
02:11 10 EPA's remedy for the plaintiffs' properties is  
11 inadequate and that yours is the correct one?

12 A I think based on a trespass kind of approach  
13 that our remedy by establishing background  
14 concentrations on their property is a better and more  
02:11 15 thorough remedy than EPA's remedy.

16 MR. RAUCHWAY: All right. Well, since it's  
17 about an hour anyway, let's take five and let Brook  
18 change the tape and then we'll press on.

19 THE WITNESS: Okay.

02:12 20 THE VIDEOGRAPHER: Going off the record. The  
21 time now is approximately 2:12 p.m. This is the end  
22 of disk number 2 in the deposition of John Kane.

23 (Off the record.)

24 THE VIDEOGRAPHER: Going back on the record.  
02:25 25 The time now is approximately 2:25 p.m. This is the

1 beginning of disk number 3 in the deposition of  
2 John Kane.

3 BY MR. RAUCHWAY:

4 Q Okay. Mr. Kane, I would like to ask you a  
02:25 5 little bit about your background opinions.

6 First, let me make sure I understand what  
7 you did.

8 Let's start with soil. To calculate  
9 background levels in soil, you used your own test  
02:25 10 samples, right, Kane Environmental test samples?

11 A Correct. Yes.

12 Q And you determined that samples from below  
13 two feet or 24 inches were representative of  
14 background, right?

02:25 15 A Equal to or greater than two feet, yes.

16 Q Okay. And then your dataset was 168 samples  
17 from that depth?

18 A That's correct.

19 Q And then you took a straight average and you  
02:26 20 also calculated the median of that 168 sample  
21 dataset, right?

22 A I did. Yes, we did.

23 Q And I think you said earlier today that you  
24 outsourced that work?

02:26 25 A I did. I worked with a statistician to

1 assist me with those calculations, yes.

2 Q And why did you do that rather than just  
3 doing that math yourself?

4 A Specialist statistician in environmental  
02:26 5 industry I thought, just like I get a driller to  
6 drill a well, just like I get some other  
7 subcontractors to do the work for me, that's someone  
8 I could talk to about it rather than just be myself,  
9 someone who specializes in that. Just the like the  
02:27 10 GIS work, we could do that ourselves but I decided it  
11 would be good to have a third party do that for us.

12 Q Did you check the arithmetic on her  
13 calculations?

14 A I did. I went through the spreadsheets to  
02:27 15 make sure it was correct. I feel confident about the  
16 results.

17 Q So using arsenic as an example, the median  
18 of your 168 sample dataset was 6.445 parts per  
19 million?

02:27 20 A That's correct.

21 Q And the straight average of the 168 sample  
22 dataset was 12.98 parts per million?

23 A That's correct.

24 Q And based on that data, you expressed the  
02:27 25 opinion that the range of background concentrations

1 for arsenic on plaintiffs' properties is somewhere  
2 between 6.445 parts per million and 12.98 parts per  
3 million; is that right?

4 A That's right, yes.

02:28 5 Q All right. For your background calculation  
6 for groundwater, you relied on data from MBMG?

7 A Montana Bureau of Mines and Geology  
8 database, yes.

9 Q And you used sample data from 20 feet or  
02:28 10 greater below ground surface for those samples,  
11 right?

12 A That's correct, yes.

13 Q And you had 107 sample data population?

14 A That's correct.

02:28 15 Q And same methodology, straight average and  
16 statistical median?

17 A That's correct, yeah. And the wells, too,  
18 were Opportunity and some in Crackerville, too, just  
19 so you know.

02:28 20 Q And again, using arsenic as an example, it's  
21 your opinion that the background for groundwater on  
22 the plaintiffs' properties is between .515 parts per  
23 billion and 1.34 parts per billion; is that right?

24 A That's correct. That's what this says, yes.

02:29 25 MR. KOVACICH: You misspoke, Counsel. It's



1 1.134 and not 1.34.

2 MR. RAUCHWAY: Thank you.

3 Q So you think the background for groundwater  
4 on the plaintiffs' properties is less than the  
02:29 5 drinking water standard?

6 A The maximum contaminant limit do you mean?

7 Q Yes. For arsenic?

8 A Well, that's background, yes, so the  
9 background concentration is less than the MCL, that's  
02:29 10 right.

11 Q Have you ever done a background analysis  
12 before this case?

13 A I was thinking about that before, and I do  
14 recall working on a background study when I was with  
02:30 15 PTI in doing work around Anaconda. And the reason I  
16 recall is that I was -- the oversight was being done  
17 by the USGS, U.S. Geological Survey, out of Denver  
18 where some of their soil scientists came out and did  
19 oversight during the sampling. However, I believe  
02:30 20 that I left the company soon after I did that work  
21 and I can't recall what was done with that  
22 information, if it was, you know, passed on to EPA,  
23 if there was a report written or frankly anything.  
24 But I do remember being involved in a soil background  
02:30 25 type of operation for a certain part of time while I

1 was there.

2 Q And is that the only occasion prior to this  
3 case that you've performed a background analysis?

4 A That's all I can recall right now. I think  
02:31 5 there is another one that was associated with a  
6 clean-up site, but I think it was in another state  
7 and quite a while ago when I was working with  
8 Environmental Partners in the early '90s, but I can't  
9 recall the exact study that was being done at that  
02:31 10 time. But I believe we were looking at background  
11 numbers and old clean-up levels and that kind of  
12 thing because it was part of a study for a site that  
13 was located I believe it was in Connecticut. But  
14 again, I don't think we published anything. I think  
02:32 15 we were just taking a look at some of the background  
16 concentrations at that time at that location.

17 Q The study that you were working on at PTI --

18 A Yeah.

19 Q -- did you finish that analysis or was that  
02:32 20 still in process when you left?

21 A I thought it was still in process. I don't  
22 think it was done at the time when I was there,  
23 because I think I would have remembered some kind of  
24 a report or something like that being generated. And  
02:32 25 I don't recall being there and seeing a background

1 report being done or delivered to the client. So I  
2 don't know. I think I left before anything was sent  
3 out.

4 Q Were you the primary author or the primary,  
02:32 5 I guess, investigator for that background analysis  
6 that you did at PTI or were you just working on a  
7 piece of it that others were working on as well?

8 A I believe I was working on a piece of it. I  
9 was doing some soil sampling in the Anaconda area  
02:33 10 with oversight from the USGS staff there with me in  
11 the field as I was doing it. I think there was other  
12 sampling being done by others at the time, or before  
13 or after me. That's what I recall.

14 Q So prior to this case, you've never done a  
02:33 15 background analysis start to finish which you were  
16 the primary investigator?

17 A Yes. I think that's true, yes.

18 Q Where did you come up with this methodology  
19 of between the median and the mean?

02:33 20 A Well, the approach that I took initially was  
21 to -- looking at the site before we sampled was that  
22 if there wasn't any distinct difference between the  
23 different vertical samples taken at each location of  
24 just a simple mean, then there may be no impacts to  
02:34 25 the property.

1           So what I mean by that is if I had sampled  
2           in the upper foot or two feet and found that just the  
3           average sample results were the same as six or eight  
4           feet below there, there really would be no issue  
02:34 5           about background because that would be background.  
6           They would be within the same of an average.

7           What we found was that there was a  
8           difference between the upper two feet of soil, its  
9           background compared to the deeper soil. So really  
02:35 10          this is just a -- it's a simple model of just showing  
11          that there is a difference between the upper couple  
12          of feet in Opportunity and Crackerville and the lower  
13          samples collected anywhere from two feet down to I  
14          think there were a couple samples that were even  
02:35 15          10 or 12 feet below the surface.

16           Q    You might have misunderstood my question.

17           A    Okay.

18           Q    Within the sample populations that you did  
19          your background calculations for --

02:35 20          A    Yeah.

21           Q    -- I think we already established this, you  
22          believe those were all representative of background,  
23          right? The 168 samples for soil and the 107 samples  
24          for groundwater?

02:35 25          A    Yes, that's right.

1 Q Okay. Where did you come up with your  
2 methodology of analyzing those datasets with the  
3 result that you conclude background is somewhere  
4 between the median and the mean?

02:36 5 A Uh-huh. I made that decision based on  
6 similarly what I just said. I decided that an  
7 average value that would take into account low  
8 concentrations and high concentrations that in the  
9 median was -- or the mean within that range was a  
02:36 10 reasonable estimate for background concentration for  
11 the metals.

12 Q So you came up with that methodology  
13 yourself?

14 A For this particular approach, yes.

02:36 15 Q Are you aware of any regulatory guidance  
16 that endorses that approach?

17 A I know that it's used in regulatory guidance  
18 as one of the ways of taking a look at statistics for  
19 soil concentrations. There's certainly other  
02:37 20 approaches, upper confidence level, that kind of  
21 thing, the UCL.

22 Q What regulatory guidance have you seen that  
23 endorses this approach that you took?

24 A Not that there was any regulatory guidance.  
02:37 25 This was my approach to try to determine again a

1 simple way of looking at what could be considered  
2 background and what could be considered not  
3 background. So it wasn't -- wasn't any EPA method or  
4 anything like that or state of Montana method.

02:37 5 Q Are you aware of any scientific publication  
6 that endorses this background methodology that you  
7 used in this case?

8 A Not in this case, no.

9 Q Are you aware of any academic publication  
02:38 10 that endorses the background methodology that you  
11 used for this case?

12 A No, I'm not.

13 Q Are you aware of any trade or industry  
14 publication that endorses the background methodology  
02:38 15 that you used in this case?

16 A No. I'm not aware of anything, no.

17 Q You've read Dr. Johnson's reports in this  
18 case?

19 A I did, yes, uh-huh.

02:38 20 Q And I understand that you have some  
21 disagreements with the dataset that she used for her  
22 background?

23 A Uh-huh.

24 Q Putting that aside for a moment, do you have  
02:38 25 any disagreement with the statistical methodology

1 that she employed?

2 A No. And in fact, I -- we followed her  
3 approach in taking another look at the data for  
4 arsenic in soil and, in fact, we applied the same  
02:39 5 dataset and calculated a 99 percent upper confident  
6 level using her approach that she talked about in her  
7 response. And we found that for arsenic the range  
8 for soil, for example, was roughly, if I remember,  
9 9 part per million, the lower confidence level, and  
02:39 10 the upper confidence level about 15 and a half, which  
11 put our number kind of in the middle of that range of  
12 the upper confidence level. So I felt that saying  
13 that 13 was a reasonable -- that's why I said a  
14 reasonable concentration because if you actually use  
02:39 15 her calculations that are spelled out in her report,  
16 you get that range I just described from roughly 9 to  
17 15 and a half or the 99 percent UCL.

18 Q When did you do that calculation?

19 A I did that this last week.

02:40 20 Q Did you do that or did you have your  
21 subcontractor do it?

22 A I had my subcontractor do that but under my  
23 direction and discussions with me, uh-huh.

24 Q Do you have those calculations that we could  
02:40 25 look at so we could reproduce what you did?

1           A    I do but not with me right now. But  
2           certainly I can provide those, yeah.

3           MR. RAUCHWAY: Okay. We'll be asking you for  
4           those or --

02:40 5           MR. KOVACICH: That's fine. We'll produce that.  
6           Send me something as a reminder, though, if you  
7           would.

8           MR. RAUCHWAY: I'll do it right now, otherwise  
9           I'll forget. If I was 20 years younger, I probably  
02:42 10          would have done that 20 times faster, but that's  
11          life.

12          Q    Let me ask you some more questions about the  
13          methodology that you used.

14                Have you ever considered how your background  
02:42 15          methodology would apply if you were to attempt to  
16          measure background in an unimpacted area?

17           A    Well, I think I did because my approach for  
18          background was to use samples that were collected at  
19          depth that were not impacted by anthropological or  
02:42 20          other surface impacts; hence, you know, samples 3, 4,  
21          12 feet below the surface that were in alluvium that  
22          was deposited there many, many years ago pre-smelter  
23          activity. So from my point of view, I did do that.

24           Q    Well, maybe we're not communicating. Let me  
02:43 25          give you an example that might help.



1           Let's consider a small town in Montana  
2           that's not impacted by any kind of historical  
3           industrial activity. Are you familiar with the towns  
4           of Dillon or Sheridan?

02:43 5           A    I've heard of them both.

6           Q    Let's use one of them as a hypothetical.

7                    You would collect soil data, and let's start  
8           with that --

9           A    Uh-huh.

02:43 10          Q    -- from below two feet in one of those  
11          communities, and then you were to calculate the  
12          statistical median, right? Okay?

13          A    Okay.

14          Q    So even though that community is unimpacted  
02:43 15          by any kind of contamination, you would conclude that  
16          half of those properties exceeded background, right?

17          A    Boy, I'm not following your logic at all.  
18          You have to try that again.

19          Q    Okay. Well, you understand that a median is  
02:44 20          the midpoint of a statistical population?

21          A    Sure. Yeah.

22          Q    And that equal amounts exceed the median as  
23          are lesser than the median?

24          A    That's right, yeah.

02:44 25          Q    So if you calculate background in an

1 unimpacted community to be a median of a dataset,  
2 then by definition half of the properties in that  
3 dataset are going to exceed your background number.

02:44 4 A If you use just the median, that would be  
5 true, yeah.

6 Q And if you use the mean or the average, you  
7 will conclude that some amount greater or lesser than  
8 half, depending on how the population is distributed,  
9 also will be above background, right, even though  
02:44 10 it's an unimpacted area?

11 A Well, I mean in that case, you are taking  
12 the numbers that are -- yeah, you are taking all of  
13 the population and you are averaging it and then in  
14 that case median to mean would perhaps show what  
02:45 15 might be considered the background. So that's  
16 possible that could be considered above what you are  
17 establishing as background. Same theory, yeah, I  
18 could see that. I didn't say contaminated, though.  
19 I said, you know, above background.

02:45 20 Q But your opinions in this case are that  
21 anything above background needs to be cleaned up,  
22 right?

23 A That's right.

24 Q So even in an unimpacted area, you would  
02:45 25 conclude that approximately half of the properties

1 need to be cleaned up using your methodology?

2 A Well, it's not really -- I would have a  
3 problem with your theory. I know what you are  
4 driving at. Yeah. The answer would be in that  
02:46 5 particular case it would be true. But we're dealing  
6 with a situation where it is a contaminated site and  
7 hypothetical doesn't work. We know that there's  
8 impacts from the former smelter operations and other  
9 potential sources on the property. It's really  
02:46 10 apples and oranges to what you are talking about.

11 Hypothetically that could be the case, but  
12 in reality and what we did is a different situation.

13 Q But if one applied your methodology for  
14 calculating background to an unimpacted area, you  
02:46 15 would still determine that something close to half of  
16 the properties were above background and required  
17 cleanup; isn't that true?

18 MR. KOVACICH: Objection; asked and answered.

19 THE WITNESS: I answered the question. Just  
02:47 20 answered the question. I said I think in the  
21 hypothetical that's the case, but we're not dealing  
22 with a hypothetical. We're dealing with a serious  
23 situation where we know of a contaminated site that's  
24 impacted some residential properties.

02:47 25 BY MR. RAUCHWAY:

1           Q    Do you think that's a valid statistical  
2 methodology to apply if you know that even when  
3 applied to an unimpacted site you would conclude that  
4 something close to half of the properties would  
02:47 5 require remediation?

6           A    Well, I think you are not understanding the  
7 premise of our approach, which was look what I said  
8 we wanted to see if there was a difference between  
9 near surface soil and deep soil samples collected at  
02:47 10 the site. If they had all been within a range of the  
11 median and the average or the mean within each of  
12 those horizons, we would have walked away and said  
13 nothing has happened here, they are all pretty much  
14 the same, within the same range of concentrations of  
02:48 15 what we're finding here. But that's not what we  
16 found.

17                   So your hypothetical is kind of like not  
18 really what our -- my approach was in determining why  
19 I did it this way. It wasn't to establish a --  
02:48 20 necessarily a clean-up level but was a relationship  
21 to determine whether or not near surface soil was  
22 different or the same from the deeper soils. And  
23 that was the first part of that.

24           Q    So you think that even though your  
02:48 25 methodology applied to an unimpacted site would

1 result in the conclusion that something close to half  
2 the properties needed to be cleaned up, you still  
3 think it's a valid statistical methodology to apply  
4 in this case?

02:48 5 MR. KOVACICH: Objection. It's compound and  
6 part of it was already answered.

7 THE WITNESS: I just go back to what I said, you  
8 know. Based on the sampling results, a reasonable  
9 range of background levels of arsenic, heavy metals  
02:49 10 between median to mean, that this is one way to  
11 establish whether or not there's impacts, whether it  
12 be in surface soil or deep soil and to establish what  
13 those differences might be. And if they are all the  
14 same, then there would be no impacts.

02:49 15 By just using a simple statistic like  
16 average and median, we're able to show that there is  
17 a difference. So that was the intent of what we did  
18 here.

19 You know, if I went to -- practically I  
02:49 20 wouldn't use that in a site that was not  
21 contaminated. You are right. That wouldn't work for  
22 that site. I wouldn't use that method on another  
23 property where I knew there was no source of  
24 contamination. I would use a different method. But  
02:49 25 this method I employed was specifically for the site.

1 BY MR. RAUCHWAY:

2 Q But your method assures that you will  
3 conclude that at least half of the properties require  
4 remediation; isn't that right?

02:49 5 A In fact, probably more than that. And in  
6 fact, if I apply the UCL that Dr. Johnson  
7 recommended, our numbers are right in there. In  
8 fact, they are right in the middle of the range of  
9 doing the UCL calculation. So it's actually, I mean,  
02:50 10 worked out pretty close.

11 Q There's nowhere in your report where you  
12 discuss your calculations of the UCL, is there?

13 A No, not the intent of this initial report.  
14 This was a -- like I said, a simple model to show  
02:50 15 that there is a difference and what we're looking at  
16 considering what a reasonable range of a background  
17 concentration would be. And I said at the end of it  
18 that we might take a look at other data and other  
19 ways of looking at the data and we have in these last  
02:50 20 few days. Using Dr. Johnson's applied method, I was  
21 interested to see what kind of a number we would come  
22 up with.

23 Q And there's nowhere in your rebuttal report  
24 where you discuss any analysis that you did where you  
02:50 25 calculated the UCL?

1           A    I didn't do it at the time of my rebuttal  
2           report. I've done it -- worked at it over the last,  
3           say, two, three weeks after the rebuttal report when  
4           it came to mind to take a look at it.

02:51 5           I reserve the right to be able to look at  
6           any new data any time I want.

7           Q    This wasn't new data. This was you trying  
8           out a new methodology, right?

9           A    I'm not trying it out. I was applying a  
02:51 10          recommended approach by your expert. And so I went  
11          ahead and took a look at it and saw what we got.

12          Q    To the same data that you had all along?

13          A    To the same data, yeah, uh-huh. Same  
14          dataset. Yeah, we didn't change any of the data.  
02:51 15          There was no additional data brought in. It was the  
16          same dataset that we've had.

17          Q    Again, looking at arsenic, your soil dataset  
18          includes values that are significantly higher than  
19          6.445 parts per million and 12.98 parts per million,  
02:52 20          right?

21          A    Yeah. That's true. There would be some  
22          that would -- those are the average and median, so  
23          there's certainly, yeah, numbers above that.

24          Q    In fact, if you look at your data summary,  
02:52 25          looking at the soil data summary in your report

1       there.

2           A     Uh-huh. I know it's here. I'm just looking  
3       for it. Okay.

4           Q     It shows a value of 199 parts per million in  
02:53 5       arsenic, right?

6           A     Uh-huh, yeah.

7           Q     You look at your rebuttal report for a  
8       moment. You have a statement at the bottom of the  
9       first page.

02:53 10          A     Yes.

11          Q     Last sentence on the first page, "Soil  
12       sampling in the deeper portion of the local  
13       subsurface soils provides the best alternative for  
14       determining natural background because these soils  
02:53 15       are undisturbed by anthropogenic activities and  
16       represent soil conditions prior to smelter  
17       emissions."

18                  Do you see that?

19          A     Yes, I do.

02:53 20          Q     So what you are saying there is sampling  
21       from two feet and below is unimpacted by smelter  
22       emissions and representative of conditions that  
23       naturally occur on these properties or at least that  
24       are unrelated to smelter conditions; is that right?

02:53 25          A     Yes, that's right.



1 Q So according to your own data for at least  
2 one plaintiff's property, there's 199 parts per  
3 million in arsenic that occurs naturally, right?

4 A That could be what we call outlier, which I  
02:54 5 know you know what that means. I don't know where  
6 that sample was collected. Maybe it was collected at  
7 two and a half feet or three feet. I don't know.  
8 It's certainly possible that they are closer to the  
9 surface, there's some outliers. It's not a perfectly  
02:54 10 zoned, you know, 100 percent that two is going to be  
11 -- everything is going to be below the background  
12 number. But so that may be the case where we're  
13 seeing that right near that two- or three-foot zone  
14 and outlier.

02:54 15 Q But if it's not an outlier, then that's  
16 representative of its natural background?

17 A No, that's not what I said. No. I said  
18 that I think that that's an outlier, and outliers are  
19 found in soil sampling. It's not unusual to see  
02:54 20 that.

21 Q This little table here we're looking at on  
22 the soil data summary page, is that the results of  
23 the analyses that your subcontractor did on the  
24 168 soil samples below two feet?

02:55 25 A Yes. That's my understanding it is, yes.

1 Q And did you -- and by that I mean you and  
2 those acting under your direction --

3 A Uh-huh.

4 Q -- utilize all 168 samples to do that  
02:55 5 analysis?

6 A That's my understanding, yes.

7 Q Didn't drop any data points for any reason?

8 A No. No. I think there was a data point  
9 that was excluded because it was a sample called  
02:55 10 basement soil because it didn't have any depth  
11 information. But all the data that was used was, you  
12 know, used in standardized data, validated data that  
13 we collected during the investigation.

14 Q And that's before you cut it down to 168?

02:55 15 A Cut it down to 168. Well, I mean, all of  
16 the -- the 168 was the samples that were below two  
17 feet that we used for calculating the background.

18 Q Right.

19 But what I'm getting at is I know there are  
02:56 20 various sample and data points that you excluded for  
21 various reasons. That was all in the process of  
22 narrowing it to 168 samples? Once you got to 168, it  
23 was a straight mathematical calculation.

24 A Oh, yes, yes. That's right. Yeah.

02:56 25 Q That was kind of a long question, but I

1 appreciate you sticking with me.

2 A We got there. Yeah, you bet.

3 MR. RAUCHWAY: Number 4.

4 (Deposition Exhibit 4 was

02:56 5 marked for identification and is

6 attached hereto.)

7 BY MR. RAUCHWAY:

8 Q Do you recognize the compilation of sampling  
9 results that we've marked as Exhibit 4, Mr. Kane?

02:57 10 A Yes, I do.

11 Q These are your results of the sampling of  
12 the plaintiffs' properties that you provided to them  
13 in memorandum form?

14 A Well, it's the first page. I mean, there  
02:57 15 was other information on each memorandum, but it  
16 looks like you copied the first page of a lot of the  
17 ones that we submitted to you and some that had  
18 figures on the front page. But there was more than  
19 that, but, yes, it's the cover page, yeah.

02:57 20 Q They are excerpts, from what I understand.

21 A Yeah, excerpts. Yeah.

22 Q Looking at the first page in Exhibit 4, this  
23 is the Cooney property.

24 You have the results of air sampling in the  
02:57 25 24- to 36-inch level. Do you see that?

1 A Yes, uh-huh.

2 Q And your results show that that was  
3 69.3 parts per million for arsenic?

4 A Yes, uh-huh.

02:58 5 Q And according to the opinion that you've  
6 expressed in this report, that's naturally occurring  
7 arsenic on these people's property?

8 A Well, you know, I just talked about the idea  
9 of the outlier and being closer to the surface. I  
02:58 10 mean, you are seeing something that's, you know,  
11 right at two feet, for example, so -- or the top of  
12 it being two feet. But, yeah, if that's what you are  
13 asking me, these are an example of the numbers that  
14 we would have used to calculate background.

02:58 15 Does that answer your question?

16 Q Sort of.

17 A Okay.

18 Q I mean, as I understood it and I think I  
19 read the sentence that you express the opinion that  
02:58 20 soils below two feet are undisturbed by anthropogenic  
21 activities and represent soil conditions prior to  
22 smelter emissions.

23 A Yes.

24 Q And I'm asking you whether that's an example  
02:59 25 of such conditions?

1           A    Well, it is on 48 to 60. 24 to 36, again,  
2           like I described earlier, could be an outlier. We  
3           are seeing some of those impacts being -- going  
4           slightly deeper than just two feet. So I would say  
02:59 5           that it's certainly possible it may have seen some  
6           migration of arsenic perhaps, not necessarily from  
7           anthropological -- anthropogenic resources but maybe  
8           just through a leaching through the soil, we might  
9           see some of these numbers higher below two feet.

02:59 10          Q    So these could be an outlier as you  
11          described before. It could be something just a few  
12          inches below 24, two-foot horizon, or it could be  
13          naturally occurring. Those are the possibilities?

14          A    I would say that it's more along the line of  
03:00 15          being right at the boundary where there was probably  
16          -- or likely some kind of migration of arsenic. That  
17          sample, even though it was 24 to 36, could have been  
18          more soil sample collected from the 24 range rather  
19          than the 36 range. There's a lot of reasons why it  
03:00 20          could be higher.

21          Q    Also with the second page there, the Field  
22          property, that indicates from your testing that  
23          40 parts per million in the 36 to 48 stratum.

24          A    Uh-huh.

03:00 25          Q    That's naturally occurring background

1       arsenic?

2           A     It's within the range of our calculated  
3       background number.  Again, with that many samples I'm  
4       not surprised that you see a higher arsenic level  
03:00 5       from time to time as, like I say, an outlier for  
6       reasons maybe that I can't explain.  Again, could be  
7       localized migration of arsenic going through the soil  
8       column at that particular location.  It's possible.  
9       We're still seeing -- it's only still two to three  
03:01 10      feet below the surface, not that deep.

11          Q     Actually it's three to four feet below the  
12      surface.

13          A     Three to four feet, excuse me, yeah.  Well,  
14      no, 24 to 36, 36 to 48, so, you know, two to four  
03:01 15      feet we're seeing those numbers.

16          Q     Well, not every value that falls outside of  
17      your median to mean range is an outlier, is it?

18          A     I think that's correct.  Some -- I think you  
19      are going to see some numbers higher than within --  
03:01 20      when you have to, because that's what --

21          Q     It's the nature of a dataset, right?

22          A     It's the nature of the dataset.  It's also  
23      with the UCL calculation, too.  You are definitely  
24      going to have numbers that are above the UCL.  That's  
03:01 25      just the nature of the soil sampling.

1           Q    So with respect to the Field property here,  
2           this 40.2 parts per million arsenic, that may be  
3           naturally occurring background arsenic on their  
4           property?

03:02 5           A    I can't speculate to know if that's really  
6           naturally occurring. It could be, for example, you  
7           know, when we were doing this work, the soil  
8           sampling, we came across cobbles of granite that were  
9           in the soil from the alluvium. It could have been  
03:02 10          some pieces of granite or weathered granite that were  
11          in the sample that might have skewed the arsenic  
12          concentration a little bit higher. So in that sense  
13          there might have been what one would consider part of  
14          background, natural conditions. But I think that's  
03:02 15          an explanation why you might see some samples that  
16          are above the UCL in this case or above mean.

17          Q    Did you consider any anthropogenic sources  
18          in your analysis for this case other than historic  
19          smelter emissions?

03:03 20          A    I didn't, no, unh-unh. I really just looked  
21          at the smelter emissions.

22          Q    So you have no basis to distinguish anything  
23          that -- any readings that you get that are above what  
24          you think are background from historic smelter  
03:03 25          emissions and any other anthropogenic source?

1           A    Well, there's smelter emissions and  
2           certainly there is the placement of tailings along  
3           Yellow Ditch, for example, and other locations  
4           upgradient where tailings were sluiced through the  
03:03 5           Yellow Ditch.  There's -- I mean, that's  
6           anthropogenic along with the airborne smelter  
7           emissions.

8           Q    How about anthropogenic sources other than  
9           historical smelting and mining activity?

03:03 10          A    I didn't really consider anything else as  
11          being a potential serious source of major deposition  
12          on the properties.

13          Q    So you have no basis to distinguish your  
14          results that you believe are above background as  
03:04 15          being related to historical mining and smelting or  
16          some other anthropogenic source?

17          MR. KOVACICH:  Objection.  He just answered  
18          that.

19          THE WITNESS:  Unless you want to -- I don't --  
03:04 20          could you rephrase the question or explain the  
21          question you are asking?

22          BY MR. RAUCHWAY:

23          Q    Well, you said you didn't consider anything  
24          else being a potential serious source of major  
03:04 25          deposition on the properties.



1 A Yeah.

2 Q And my question is, well, you have no basis  
3 to distinguish your results that you think are above  
4 background as being caused by historical mining and  
03:04 5 smelting or caused by anything else; lead paint, lead  
6 gasoline or arsenical depositions through pesticides,  
7 anything like that?

8 A Well, I mean, I took a look at this and  
9 where we sampled and the yards where we picked  
03:04 10 locations where there were -- from talking to the  
11 owners that were the least impacted by anthropogenic  
12 sources, attempted in most cases to keep away from my  
13 types of buildings or any areas where there were  
14 plantings of flowers or vegetables or there might  
03:05 15 have been use of pesticides or herbicides. So as  
16 part of our approach, we were in areas that were the  
17 most undisturbed on each piece of property and didn't  
18 observe any issues regarding deposition of lead by  
19 any other sources and did not observe any current use  
03:05 20 of any arsenic or lead-type-based pesticides or  
21 herbicides being used on any property.

22 Q So because you didn't observe it, you ruled  
23 it out?

24 A I didn't see any previous investigation that  
03:05 25 I was aware of significant lead or arsenic

1 contamination due to pesticides in any of the  
2 residential properties or Anaconda or Mill Creek or  
3 locations like that. I didn't see any other reason  
4 to think that there would be major contribution of  
03:06 5 those metals from where we were sampling.

6 Q Looking back at the Exhibit 4 here, on the  
7 next page you have the Meyer property and that shows  
8 in the five- to seven-foot depth area you have  
9 41.2 parts per million of arsenic.

03:06 10 A Uh-huh.

11 Q Is that representative of background  
12 conditions on that property?

13 A Same answer as before. Certainly within  
14 that location, particular location we may have hit a  
03:06 15 little cobble of granite or other source of a higher  
16 arsenic that might have been in the soil there. But  
17 if you look above and below that sample, you can see  
18 that it's certainly within the range I just talked  
19 about of medium to average or upper confidence level,  
03:07 20 certainly representative of background.

21 In fact, those four samples all of the way  
22 from 48 inches to 117, three out of the four are all  
23 certainly within that range.

24 Q Did you look at the soil sampling and data  
03:07 25 that was collected by Atlantic Richfield's

1 contractors in this case?

2 A Do you mean would that be Pioneer?

3 Q Pioneer and Trec, yeah.

4 A Soil samples -- sampling that was done in  
03:07 5 the summer of 2012 or earlier?

6 Q That's right. In connection with this  
7 lawsuit.

8 A Yes, I did look at it. Yeah.

9 Q Did you have any reason to doubt the  
03:08 10 accuracy of the results that were reported from those  
11 tests?

12 A I don't have any reason to doubt them. I  
13 did not see a data validation report for that data,  
14 so I haven't seen -- or I'm not sure if that data is  
03:08 15 data validated 100 percent.

16 But other than that, I have no reason to  
17 assume that that data is incorrect or wrong or  
18 anything. It was collected in the upper -- if I  
19 remember right, just in the upper 18 inches. I don't  
03:08 20 believe any soil samples were collected deeper than  
21 18 inches during any of their work last summer.

22 Q There were some instances where the  
23 Atlantic Richfield data showed higher concentrations  
24 of arsenic than did your test results; isn't that  
03:08 25 right?

1           A    I saw that, yeah. They had some high  
2 numbers, yeah.

3           Q    Even in the same soil stratum, in the same  
4 property?

03:09 5           A    Yeah. And they took, if I remember right,  
6 three or four samples per property and then  
7 composited the samples and then mixed up the samples,  
8 what that means, and then sent that off to analysis.  
9 So they certainly may have located some what we call  
03:09 10 hot spots on the property, they have very high  
11 levels.

12           Q    So would you agree that even within the same  
13 property there can be a significant variance in the  
14 concentrations of certain metals?

03:09 15           A    I think that's possible, yeah, on the low  
16 side and the high side, sure. That's the variability  
17 you find in soil sampling. It doesn't take much to  
18 take a grain of sand that has a high arsenic  
19 concentration, have that be in your sample and all of  
03:09 20 a sudden your sample is a lot higher.

21                    So everybody in this business, I think,  
22 understands that there is some sampling variability,  
23 hence why we try to use statistics to try to  
24 normalize data as well as we can.

03:10 25           Q    And I think you mentioned in your report,

1 and I believe you just said it again a moment ago,  
2 that you took samples from the plaintiffs' properties  
3 in the areas that they indicated that they thought  
4 were contaminated, correct?

03:10 5 A Well, that and also what we observed. Like  
6 I also mentioned that I -- we didn't -- we tried not  
7 to take samples near vegetable gardens or, you know,  
8 shrubs or small sheds and it was almost limited to  
9 where trees were located and utilities. So, you  
03:10 10 know, we did the best we could to find locations that  
11 were not potentially impacted from anthropogenic --  
12 well, excuse me, from current operations on people's  
13 properties.

14 Q So I understand you didn't take your sample  
03:10 15 from under the, you know, parked car or under the,  
16 you know, lawnmower or something.

17 A Yeah, yeah.

18 Q But aside from that, you sampled what the  
19 plaintiffs indicated were hot spots on their  
03:11 20 property; is that fair?

21 A No, I didn't say that. No, no, I didn't say  
22 that.

23 Q That they thought were contaminated?

24 A No, I didn't say that either. I said  
03:11 25 locations that looked like they were undisturbed.

1           And, in fact, a lot of them weren't there  
2           when we sampled. It's not like they had an "X" on  
3           the ground with a circle and said sample here. We  
4           were the ones that made the call of where to sample.  
03:11 5           And we had certainly asked the questions when people  
6           were there, and I didn't keep track exactly the  
7           number of people that we talked to, but easily  
8           three-quarters of the people where we sampled weren't  
9           there when we sampled or didn't -- didn't tell me  
03:11 10          where things were -- had happened. And what I mean  
11          by that is there was a few people that said to me,  
12          "Well, that's where my vegetable garden was." So I  
13          would say, "Okay. We're not going to sample your  
14          vegetable garden where you brought in clean fill.  
03:12 15          That's not what we're doing here." That kind of an  
16          example.

17           Q     One of the factors that you considered was  
18           the homeowners' indication of where they believed the  
19           contaminated spots on their property were?

03:12 20          A     I don't recall -- other than a couple people  
21          said, "There might be a problem over in the area  
22          where my grass isn't growing," then I said, yes,  
23          that's a reasonable place to go sample to see if  
24          there are impacts there. So that did happen in some  
03:12 25          cases but not in most. Most of it was our choice on

1 where to sample based on proximity and utility issues  
2 and what seemed to be the most undisturbed location  
3 on a property.

4 Q And it was one sampling location per  
03:12 5 property for soils?

6 A That's right. Yep, because we were sampling  
7 discrete soil samples and in some cases installing  
8 the groundwater wells at the same location where  
9 we're installing -- taking the soil samples. So our  
03:13 10 approach was more of an area-wide sampling scheme  
11 rather than multiple samples on one property. We  
12 took one vertical distribution of samples on each  
13 property down to groundwater and then once we hit  
14 groundwater we either stopped or we installed a well.

03:13 15 Q In your work outside of this case, have you  
16 ever followed the approach of taking just one sample  
17 location per property to determine what the metals  
18 concentration on that property was?

19 A Well, it's apples and oranges. What I said  
03:13 20 before was that it's true we only took one sample  
21 location per property, but we had 60-plus properties  
22 that we were looking at distributing those samples  
23 around the whole area, not only Opportunity but  
24 Crackerville, to establish more of an area-wide  
03:14 25 sampling approach as best we could.

1           And what I mean by that is that, you know,  
2       we didn't have -- we could only sample on the  
3       plaintiffs' properties so that was our approach in  
4       determining the background concentrations, more of an  
03:14 5       area-wide rather than multiple locations on each  
6       property which would have also, you know, tripled or  
7       quadrupled not only cost but time to do that work.  
8       And we felt we had enough samples from doing the one  
9       sample pour -- per location because in some cases,  
03:14 10       and this is a good example, it's one location but we  
11       got ten soil samples from this one location, which we  
12       were able to help determine background concentration.

13           Q     When you say ten samples you are talking  
14       about ten samples from different levels on the same  
03:14 15       hole?

16           A     That's right. So zero to two inches, two to  
17       six inches, et cetera, that's right.

18           Q     Have you ever followed that approach before  
19       in your work outside of this case?

03:15 20           A     Many times I've gone out with a drill rig  
21       and taken multiple samples at different intervals to  
22       establish the depth for determining the presence or  
23       absence of contamination on a property.

24           Q     The approach I was talking about was taking  
03:15 25       one sample location per property. Have you followed



1       that approach in your work outside of this case?

2           A     To establish whether or not there's been a  
3       release of a contamination, there had been some cases  
4       where we have just gone out and done one boring and  
03:15 5       showed that there was contamination and then we  
6       stopped.

7           Q     How about to determine what the conditions  
8       were on the property as a whole?

9           A     Well, it's not -- it wasn't set up to be a  
03:15 10       site characterization for individual parcels. It was  
11       set up to be a characterization for an area.

12          Q     Would you agree that your  
13       one-sample-per-property approach doesn't provide an  
14       accurate characterization of what contaminants may be  
03:16 15       present on any single property?

16          A     That was a thought that I had and at the  
17       time, after I reviewed Arco's consultant knowing that  
18       they were going out and doing multiple samples on the  
19       properties, I felt there wasn't a need for us to go  
03:16 20       out and do that, that we would be able to rely on  
21       that data to show that they had concentrations in the  
22       upper, you know, 18 inches, and we would see, well,  
23       are they above our background calculations or not.  
24       And I'm -- as you said, I'm not -- I don't see any  
03:16 25       reason why I can't look at that data or rely on that

1 data to show me that further soil sampling on these  
2 properties do indeed find even higher concentrations  
3 than we found.

4 Q Not in every case.

03:17 5 A Not in every case but in some, yeah.

6 Q You didn't rely on any of Arco's data for  
7 the opinions you express in your reports, do you?

8 A No, absolutely not, no. I'm relying on my  
9 own data. What I mean by that it's just additional  
03:17 10 data that I can review to show if concentrations are  
11 above our calculated background data but nothing else  
12 than that.

13 Q And you said your approach was not to  
14 characterize any single property but to do -- to  
03:17 15 characterize the area; is that right?

16 A Uh-huh, yeah.

17 Q Did you understand that your charge in this  
18 case was to do an area-wide characterization of  
19 contamination?

03:17 20 A No. Area-wide evaluation of establishing  
21 background for soil and groundwater, that was my  
22 charge.

23 Q How about your remedy, are you proposing an  
24 area-wide remedy or a property-by-property remedy?

03:18 25 A Oh, no, property-by-property. All we can do

1 is to represent our plaintiffs. So that's all I'm  
2 doing here is representing my plaintiffs -- the  
3 plaintiffs.

4 Q So you relied on area-wide characterization  
03:18 5 to propose a property-by-property remediation?

6 A Okay. Let me think. We use an area-wide  
7 approach to establishing background using the  
8 plaintiffs' properties that were available for our  
9 use to establish background within the area of  
03:18 10 Opportunity and in Crackerville. So by establishing  
11 background throughout and, you know, pretty well  
12 distributed throughout the town and through that area  
13 of Crackerville, it's what I would consider a  
14 reasonable horizontal extent of locations from east  
03:19 15 to the west -- east to west in Opportunity and within  
16 the area around Crackerville to be able to establish  
17 those background concentrations.

18 So what I mean by that, it's not like we  
19 just took samples in the southeast corner of  
03:19 20 Opportunity and said, okay, this is background. We  
21 got samples from all over the town and in  
22 Crackerville and we're saying that for this area that  
23 we're working in, from this sampling that we've done  
24 throughout this area, we're establishing background  
03:19 25 for the plaintiffs' case based on those analytical

1 results.

2 Q Before this case, have you ever designed the  
3 remediation of one or more properties based on a  
4 single sample point per property?

03:20 5 A I can't recall that I have, no, unh-unh.

6 Q Do you remember the reference in  
7 Dr. Johnson's reports to deep soil borings that have  
8 been taken by MBMG in the area of where the  
9 plaintiffs live?

03:20 10 A I actually don't recall that. I'm sorry.

11 Q I think they were called cores. There was a  
12 Crackerville core, an English Gulch core.

13 A Of the rock samples that were collected?

14 Q Yes.

03:20 15 A Yeah, I do recall her talking about some  
16 rock samples being collected, yes.

17 Q And do you recall that some of the arsenic  
18 levels in those cores was in excess of 1000 parts per  
19 million?

03:21 20 A I do recall that being true, yes.

21 Q Did you consider that in your background  
22 analysis?

23 A I didn't because this is a site -- an  
24 area-wide specific background approach looking at the  
03:21 25 site specific background for those properties within

1 the alluvium and the alluvium being deposited there  
2 from the mountains surrounding that area, which is  
3 actually a mixture of all of those rocks samples that  
4 she's talking about to create a natural background of  
03:21 5 metals concentrations in that alluvial material.

6 So she's looking at source rock which would  
7 have higher concentrations, because that's what it  
8 is. That's where not only arsenic's located but  
9 copper and the other metals that were being mined was  
03:22 10 in the rocks. So it's going to have very high  
11 concentrations of the metals, because that's the  
12 source rock why all of this smelter was there anyway.

13 So that's not background for the soil that  
14 we're talking about where people live. We're --  
03:22 15 they're talking about rock samples collected in other  
16 areas around Deer Lodge Valley and the Silver Bow  
17 Lake area, which in my mind doesn't apply to what we  
18 were doing as part of our investigation. We  
19 established area background concentration using site  
03:22 20 specific data in the alluvium where there were  
21 impacts from the smelter emissions.

22 Q Would you agree that the concentrations that  
23 were reported in those cores, using arsenic again as  
24 an example, is naturally occurring?

03:23 25 A Well, that's -- naturally occurring. I

1 mean, it's rock. So I mean rock is -- was there  
2 first, I guess you could say, if you want to call it  
3 that way. But again, you are looking at  
4 concentrations of metals in rock samples collected  
03:23 5 miles away from what we're taking about. So I think  
6 it's apples and oranges. It's not the same thing.

7 I'm not denying that the arsenic -- I'm  
8 saying the arsenic is there, yes. I don't see how  
9 it's any relation to what I'm seeing in the soil  
03:23 10 samples, saying that -- if you are saying that 1000  
11 is background in Opportunity because there's a rock  
12 sample a few miles away that has arsenic at 1000  
13 parts per million, I'm not going to agree with that.

14 Q Okay. Well, I don't want to argue with you  
03:24 15 and suggest that you don't argue with me. Just  
16 answer the questions that I ask.

17 You are not suggesting --

18 MR. KOVACICH: I don't think he was arguing with  
19 you, Counsel. He's trying to answer your questions.  
03:24 20 That kind of statement is not necessary.

21 THE WITNESS: Yeah, I'm not arguing with you.  
22 I'm just trying to understand why it's even relevant.  
23 I mean I don't know -- Dr. Johnson's a professional.  
24 I don't understand why that is considered background.  
03:24 25 It's a rock.

1 BY MR. RAUCHWAY:

2 Q Well, that's the argument part that I'm  
3 talking about. You know --

4 A Okay.

03:24 5 Q -- if you think my questions are silly and  
6 irrelevant, you guys can talk about that to your  
7 heart's content off the record. But here I would  
8 like to ask my questions and get your answers, and  
9 we'll be finished.

03:24 10 A Well, I thought I answered your question,  
11 but go ahead.

12 Q The arsenic concentrations in those rock  
13 cores, would you agree those are naturally occurring?

14 A Naturally occurring in rock, yes.

03:24 15 Q Not caused by smelter emissions, for  
16 example?

17 A Naturally occurring in the rock, yes.

18 Q Do you think those are caused by smelter  
19 emissions?

03:25 20 A No. They wouldn't be smelter emissions in  
21 rock, no.

22 Q And you said these were miles away from  
23 where plaintiffs lived. How many miles away?

24 A Well, I thought one of the samples was a  
03:25 25 couple, three miles away, if I remember right. I

1 don't remember. I don't recall the exact distance,  
2 but it was not in the area around Opportunity or  
3 Crackerville, my understanding. That was further up  
4 the valley.

03:25 5 Q And you referred to the alluvium in response  
6 to one of my questions a few moments ago.

7 A Yes, uh-huh.

8 Q If the soil where plaintiffs lived was  
9 characterized more by a -- as a glacial outwash,  
03:25 10 would that change your opinion as to the relevance of  
11 the rock cores to determining background?

12 A I think I said that, you know, the outwash  
13 would come from erosion from those mountains, so  
14 there's certainly the source of that area is from the  
03:26 15 mountain area and especially in the last 2 million  
16 years during Pleistocene we know that, you know,  
17 glacier activity was -- you know, occurred in that  
18 area. But, you know, glacial activity back then, who  
19 knows where some of that rock came from.

03:26 20 So just saying it's from that location I  
21 think is an unknown. The alluvium is an amalgam of a  
22 lot of different depositional materials through, you  
23 know, the glacial activity, fluvial activity and  
24 natural airborne activity pre-smelter.

03:26 25 Q Looking at your first report on page 6 and



1 continuing on to page 7 and 8, you have a heading  
2 that says "The Cause of the Contamination of Soil in  
3 Groundwater in Opportunity and Crackerville,  
4 Montana."

03:27 5 A Yes, I see that.

6 Q And you concluded that "The most likely  
7 reason," using your words --

8 A Yes.

9 Q -- is historical smelter emissions, right?

03:27 10 A Uh-huh.

11 Q What do you mean by the phrase "most likely  
12 reason"?

13 A I think it's more of a -- really a style of  
14 my writing in the sense that sometimes when one says  
03:29 15 just the only reason this happened is for this  
16 reason, that can be interpreted to mean, well, the  
17 what-if scenario of -- and we know -- in some cases  
18 we know that some of the couple of the property  
19 owners did use some slag and that kind of thing in  
03:29 20 their driveways, but that's still from the operation  
21 of the smelter. So I don't know, I think it's just a  
22 writing style issue. I can't really explain why I  
23 said that.

24 Q Did you do any independent analysis of  
03:29 25 causation in this case or did you merely report what

1 others had said about causation?

2 A What -- can you explain to me what you mean  
3 by "causation"?

4 Q What the cause of the contamination that you  
03:30 5 believe exists on this property was.

6 A Oh, I see. Sure.

7 The -- in the review -- well, I reviewed the  
8 historical information that was provided. I reviewed  
9 the different reports by Arco and their consultants  
03:30 10 and by EPA and the statements made in those reports  
11 that smelter emissions were responsible for arsenic  
12 and lead in soils in these residential areas. And I  
13 can cite different locations and I did, you know,  
14 further on in this discussion about my literature  
03:30 15 search that made these statements of causation.

16 Q So as far as your analysis goes, it was a  
17 literature search?

18 A Well from my reading of -- background  
19 reading of reports previously written by either Arco  
03:31 20 or EPA and finding statements that confirmed  
21 deposition of arsenic and lead but mainly arsenic, I  
22 think, the main contaminant of concern from the  
23 smelter operations, yeah.

24 Q And with respect to the soil contamination,  
03:31 25 the source that you cite in your report here on

1 page 7 is Dr. Quivik?

2 A That's right.

3 Q And so you relied on a historian to  
4 determine the cause of the soil contamination on the  
03:31 5 plaintiffs' properties?

6 A No, not just that. I used this because it  
7 was a good history of showing that the arsenic  
8 trioxide had actually, the deposition of it had been  
9 going on since the turn of the 19th -- the 1900s, but  
03:32 10 there are other sources that I have reviewed that  
11 have made the statement that the arsenic was present  
12 due to smelter emissions, again both Arco and EPA  
13 documents.

14 Q You have a sentence there on page 7 that  
03:32 15 says, "The smelter operated until 1980 and continued  
16 to deposit arsenic and other heavy metals onto the  
17 soil in Opportunity and Crackerville."

18 A Yeah.

19 Q Are you relying on Dr. Quivik for that  
03:32 20 statement or some other source?

21 A I believe that was a follow-on statement by  
22 Dr. Quivik and also from another report. I didn't  
23 put it into italics that was in this specific passage  
24 of Dr. Quivik's report, but I believe it was in his  
03:32 25 report where he talked about it operating up until

1 1980. And I've seen that in other reports for the  
2 smelter.

3 Q Do you believe that aerial deposition of  
4 arsenic and other heavy metals onto the soil in  
03:33 5 Opportunity and Crackerville ceased when the smelter  
6 stopped operating in 1980?

7 A I believe that would be the case, that once  
8 the smelter stopped the other -- the only other way  
9 that there would have been deposition might be  
03:33 10 wind-blown contamination off of Smelter Hill at that  
11 time. Certainly a distinct possibility because very  
12 high levels of arsenic from the flue dust and that  
13 kind of thing and in the old smelter were definitely  
14 there on Smelter Hill at that time, I remember that,  
03:33 15 until at least the late 1980s or mid to late 1980s  
16 when there were certain removal actions on Smelter  
17 Hill to address those concerns.

18 So certainly from the smelter it would have  
19 stopped in '80 but wind-blown deposition of arsenic  
03:33 20 just off of even Smelter Hill alone may have been  
21 another cause of deposition downwind of high arsenic  
22 concentrations.

23 Q Did you do any analysis of whether  
24 deposition of arsenic and other heavy metals onto the  
03:34 25 soil in Opportunity and Crackerville continued after

1 the cessation of smelter operations?

2 A No. Only from my reading about the presence  
3 of the elevated concentrations in piles and soils on  
4 Smelter Hill after 1980 when it was shut down.

03:34 5 Q And I think you referred to this at some  
6 point in the late '80s and early '90s, there was a  
7 removal action to entomb those materials on Smelter  
8 Hill?

9 A That's my recollection. In particular, I  
03:34 10 think there was some large flue dust pile on Smelter  
11 Hill that were removed. I thought that they were  
12 sent to the Opportunity ponds disposal area, but I  
13 can't recall exactly where they went.

14 And then certainly at that time in '85,  
03:35 15 there was -- I remember some removal of elevated  
16 arsenic concentrations in soil in the town of  
17 Mill Creek that necessitated the removal of the  
18 residents from that town and then the subsequent  
19 demolition and removal of additional soils of the  
03:35 20 entire population in Mill Creek in around '85 to  
21 about '87, I think.

22 Q Have you seen any evidence in the course of  
23 your work on this case that deposition of arsenic and  
24 other heavy metals onto the soil in Opportunity and  
03:35 25 Crackerville continued after late '80s or early '90s

1 after those conditions on Smelter Hill were  
2 remediated?

3 A I didn't notice any evidence that I could  
4 say came from wind-blown contamination off of  
03:36 5 Smelter Hill from the samples that we collected.  
6 That would have been post 1980. I'm not sure how I  
7 would be able to really to see that necessarily.  
8 It's not like I saw a lens of flue dust or something  
9 like that. I didn't see anything like that, I admit.

03:36 10 My discussion about that is more along the  
11 lines of my understanding of reading materials about  
12 the activities that occurred on Smelter Hill and  
13 Mill Creek at that time.

14 Q I'm including in your reading of the  
03:36 15 literature and other reports and all of that sort of  
16 thing.

17 A Yes, I understand. Yeah. But what I  
18 thought you were asking me is also if I had seen  
19 that, you know, during my sampling, any sampling work  
03:36 20 I had done in Opportunity, and I was saying I hadn't.

21 Q I meant to include that in the question as  
22 well. Things that you observe personally, things  
23 that you observed in the data, things that you read  
24 in your literature search.

03:37 25 A Yeah.

1 Q Any evidence.

2 A Literature search for sure and reading. I  
3 read about wind-blown -- potential for wind-blown  
4 deposition after 1980.

03:37 5 Q I'm talking about after the remediation of  
6 the conditions on Smelter Hill.

7 A Oh, after that happened --

8 Q Yes.

9 A -- say after the mid or late '80s.

03:37 10 Q Right.

11 A I can't recall right now of a discussion  
12 about that post, you know, in late '80s or 1990s. I  
13 can't recall reading that at this time, but I want to  
14 be careful in case there is something out there I'm  
03:37 15 just not remembering about that.

16 MR. KOVACICH: Is this a decent time to break  
17 again real quick?

18 MR. RAUCHWAY: Sure.

19 THE VIDEOGRAPHER: Going off the record. The  
03:38 20 time now is approximately 3:38 p.m.

21 (Off the record.)

22 THE VIDEOGRAPHER: Going back on the record.  
23 The time now is approximately 3:50 p.m.

24 BY MR. RAUCHWAY:

03:50 25 Q All right. Mr. Kane, I would like to ask

1     you a bit more about your cost table, so if you could  
2     turn to that in your report.

3             A     Sure.

4             Q     Have you ever costed out a \$100 million  
03:50 5     project before?

6             A     A \$100 million, no.   Not a \$100 million, no.

7             Q     What is the next largest project you've  
8     costed out to this one?

9             A     Oh, I think probably around \$20 million.

03:51 10            Q     And what kind of project was that?

11            A     Initially it was a cleanup of a contaminated  
12     site in a shopping mall that had some large releases  
13     of contamination due to solvents, chlorinated  
14     solvents, and it involved demolition of buildings and  
03:51 15     that kind of thing.   So it was expensive due to that.

16            Q     How many times have you costed out a project  
17     in excess of \$10 million?

18            A     I would say two or three times over  
19     \$10 million.

03:51 20            Q     Did you try to be as accurate as possible  
21     when you costed out this project?

22            A     Accurate as possible.   So accurate in the  
23     sense of my estimate of the amount of soil and amount  
24     of time that I thought it would take for both the  
03:52 25     soil excavation and installation of the underground



1 PRB wall and then -- certainly. And yeah, I guess  
2 the answer's yes.

3 Q Were there some parts of it that you didn't  
4 try to be as accurate?

03:52 5 A No, no, no, that's not what I meant. I was  
6 just going through it in my mind what I did.

7 But yes, I went through this as accurate as  
8 I could be multiple times to make sure it was a good  
9 estimate.

03:52 10 Q And did you rely on your professional  
11 experience to come up with this cost estimate?

12 A Well, some of that, yes, uh-huh, along with  
13 talking with some subcontractors who -- you know,  
14 like Waste Management to get actual numbers from  
03:53 15 them. Some other subcontractors to get an idea of  
16 how much something -- how much time different things  
17 take.

18 And so, for example, for the excavation  
19 activity, I talked with a contractor I recently  
03:53 20 worked with where we actually installed a PRB wall  
21 here in the Northwest. It was deeper than the one  
22 that's proposed here but got an idea of talking about  
23 how it would actually be done, the approach, and  
24 estimated the amount of time based on my conversation  
03:53 25 with him.

1 Q And did you use some measure of professional  
2 judgment in coming up with these figures here on your  
3 table 1?

4 A Sure. There's professional judgment in how  
03:54 5 long things take, but the actual costs I did the best  
6 I could to come up with numbers that were based on  
7 actual costs for doing that type of work, whether it  
8 be a contractor cost or a hard cost like disposal or,  
9 you know, the fill import cost. I got those from  
03:54 10 other people.

11 Q You didn't try to overestimate this in any  
12 way to benefit the plaintiffs?

13 A I did not.

14 Q This figure, \$101,058,115, that's what you  
03:54 15 think it will actually cost to do the restoration  
16 that you believe is required on the plaintiffs'  
17 properties?

18 A Well, based on what I have here on the  
19 spreadsheet, that's the case, yes.

03:54 20 Q Well, is there some reason you think that's  
21 not the case based on information that doesn't appear  
22 on this spreadsheet?

23 A Well, I guess the only reason I say it like  
24 that is because it does say estimated cost. So  
03:55 25 between now and then, some things could change. So

1 prices change, maybe the amount of time might change  
2 due to more information from someone I might get down  
3 the road.

4 Again, like any expert witness, we always  
03:55 5 say, you know, things could change based on more  
6 information provided or during review of other  
7 documents, but I have no -- at this time I don't have  
8 any reason to believe that this number would, based  
9 on this approach, change. Nothing's changed. It's  
03:55 10 not like now that the soil disposal costs haven't  
11 changed. They are still that amount. If it was two  
12 or three or five years from now, that number could be  
13 different. But that's what I'm saying based on  
14 current conditions.

03:56 15 Q Based on the knowledge that you possess as  
16 you sit here today --

17 A Yes.

18 Q -- this is what you think it's really going  
19 to cost to perform the restoration that you think is  
03:56 20 necessary?

21 A Based on this approach, yes, uh-huh.

22 Q You have a line item in here for "Legal  
23 council (sic) costs." Do you see that?

24 A Yeah. Yes, I do.

03:56 25 Q What does that refer to?

1           A    That was the Kane Environmental costs to  
2           date at the time of the report, which would have  
3           been -- I mean of this report, as of April 15th of  
4           this year. I put in that line item that that was our  
03:56 5           cost to date as of April 15th, or invoiced.

6           Q    Excuse me. How is that legal counsel cost?

7           A    I've been paid by counsel on my fees to do  
8           the work.

9           Q    So part of the costs that you've included in  
03:57 10          your restoration are your expert witnessing fees for  
11          this case?

12          A    Well, no, not in this case. It's not really  
13          expert witnessing. This was during the investigation  
14          work, but nothing in preparation of what I'm doing  
03:57 15          right now for where we are right now today. That's  
16          not included in that. So this is all for site  
17          characterization and preparation of the report, if  
18          that's what you mean.

19          Q    Preparation of your expert report?

03:57 20          A    Yeah, that would include that -- that would  
21          be included in this, that's true, I'm sorry, yes.

22          Q    Why did you include your fees for this case  
23          or some portion of your fees for this case in  
24          table 1?

03:57 25          A    I was ac- -- I was asked by counsel to

1 include that number.

2 Q I think you testified before that you  
3 believed that the plaintiffs actually intend to  
4 perform the restoration that you are costing out here  
03:58 5 in table 1?

6 A Yeah, I do believe that, and I think they  
7 will, yeah.

8 Q What is your source of that knowledge or  
9 that belief?

03:58 10 A From talking to people who want their  
11 properties cleaned up, that's why they are doing  
12 this. They want to see their properties cleaned up.

13 Q So you've spoken to the plaintiffs  
14 themselves or some of them?

03:58 15 A I've spoken to a number of them, yeah. I  
16 haven't spoken to all of them, but I've spoken to a  
17 number of them. And the ones that are the plaintiffs  
18 want their properties cleaned up.

19 Q Is there any provision in table 1 for fees  
03:58 20 for plaintiffs' counsel?

21 A Other than that line item of the costs to  
22 date, no. Nothing that I'm aware of, no.

23 Q Are you referring to legal counsel costs?

24 A Yeah. And again, that's Kane Environmental  
03:59 25 costs that were to date.

1 Q Have you seen the plaintiffs' fee agreement  
2 or fee agreements with their counsel in this case?

3 A I have not. I have no knowledge of that.

4 Q Do you know if plaintiffs' attorneys intend  
03:59 5 to take some percentage of this \$101 million if  
6 that's, in fact, what's awarded at trial?

7 A I don't know if that's indeed the case or  
8 how much. I wasn't actually told that that's what  
9 would be happening; however, I think that might be  
03:59 10 the case as it is a contingency case. But I haven't  
11 been told the percentages of anything or any kind of  
12 fee arrangements or anything of that kind.

13 Q Did you ask those questions?

14 A I didn't, no, unh-unh.

04:00 15 Q If plaintiffs' attorneys were successful in  
16 obtaining a \$101 million award in this case and took  
17 33 percent of that, do you think that the restoration  
18 remedy that you believe is necessary could be  
19 accomplished for \$68 million?

04:00 20 A Well, I don't know. I don't know.

21 Q As you sit here today, you don't know  
22 whether your proposed remedy could be established for  
23 67 percent of what you are saying it will cost?

24 A Well, I mean I don't have a number in here  
04:00 25 saying that a percentage of this sort of goes away

1 and that we're really doing it for "X" dollars. This  
2 is my estimate of what I propose would be needed to  
3 do the remedy following this approach.

4 So you asked me could this be done. I don't  
04:01 5 know. I don't think it could be, this approach, if  
6 that much money was taken out of the total.

7 Q You don't think your estimate's overstated  
8 by 33 percent, do you?

9 A Oh, no, I don't, no. Unh-unh, no.

04:01 10 Q I don't think I asked you before, but with  
11 respect to your PRB wall --

12 A Yeah.

13 Q -- and that's the same as the iron filings  
14 wall, right?

04:01 15 A Same deal, yeah.

16 Q There's some amounts there for  
17 transportation and disposal of soil, right?

18 A Yes.

19 Q And it's the same rates as with respect to  
04:02 20 the soil removal, \$26 for disposal?

21 A That's right.

22 Q And \$48 for transportation?

23 A Yes. That's correct.

24 Q And so you propose to transport the soil  
04:02 25 that's excavated for purposes of the PRB walls to

1       Spokane?

2           A     Yes.   The same location.   That's the same  
3       disposal location, yeah.

4           Q     Dispose of it in the same landfill?

04:02 5           A     Same thing, same way, yes, uh-huh.

6           Q     You have a contingency factor of 20 percent  
7       built in?

8           A     Uh-huh, I do, uh-huh.

9           Q     And that's applied to both the 51.6 million  
04:02 10       and the 15.5 million?

11          A     I think it also includes the pilot test of  
12       500,000.   Get my calculator out and figure that out  
13       if you want me to.

14          Q     Not necessary.

04:03 15          A     All right.

16          Q     Do you believe that contingency is more  
17       likely to be implicated for your soils work as  
18       opposed to your PRB wall work?

19          A     I couldn't tell.   I mean, it could be both.  
04:03 20       You know, when you -- when you start digging, you  
21       find things, so it could be either or both.

22          Q     How about with respect to project  
23       management, does that apply to both the soils remedy  
24       and the PRB remedy?

04:03 25          A     Yes.   That applies to the subtotal of



1 task 1, 2 and contingency, yeah.

2 Q Okay. And do you as you allocate some  
3 greater portion of that to the groundwater remedy  
4 than soils remedy or vice versa?

04:04 5 A Yeah. Number -- an overall project  
6 management fee for both tasks, yeah, and contingency.

7 Q Do you believe that either the soils remedy  
8 or the groundwater remedy will require more project  
9 management attention than the other?

04:04 10 A I would think that removing the soil from  
11 the different residences will take more project  
12 management than digging a ditch, yes, yeah.

13 Q How about remedial design? Will there be  
14 more remedial design costs for the soils remedy or  
04:04 15 the groundwater remedy?

16 A You know, I think that could be equal, again  
17 due to the variability of the residences, but also  
18 what might be encountered or what might need to be  
19 done for digging those trenches. So that could be  
04:05 20 both, equally distributed.

21 Q How about construction management, same  
22 question?

23 A Same answer. I think that's both due to  
24 complexity of dealing with multiple residences, but  
04:05 25 also potential problems of digging even a trench in

1 an area where you may encounter unknown conditions.

2 Q How about with respect to O&M technical  
3 support, is that something that you would expect to  
4 be required more for the groundwater remedy than the  
04:05 5 soils remedy or vice versa?

6 A I think that is more along the lines of the  
7 groundwater remedy than the soil remedy. There will  
8 be some O&M to check to make sure the soil conditions  
9 are -- stay robust and intact, but more O&M in regard  
04:06 10 to dealing with groundwater.

11 Q Can you put a rough percentage on that as  
12 far as how much for groundwater versus how much for  
13 soils for O&M?

14 A Oh, I think a 60/40 kind of split maybe,  
04:06 15 maybe a little more. 60 to 70 for the groundwater  
16 and 30 to 40 for soil.

17 Q The line items on your table from -- under  
18 "Engineering and Design Management" total some  
19 \$19.6 million.

04:06 20 A Yeah.

21 Q Do you expect that Kane Environmental will  
22 be the recipient of any of those \$19 million plus in  
23 fees?

24 A At this time I don't expect that, no.

04:06 25 Q Have you had any discussions along those

1 lines with plaintiffs' counsel?

2 A I have not.

3 Q Do you intend to bid on any of that work if  
4 plaintiffs are successful?

04:07 5 A I haven't really thought about that, to be  
6 honest with you. I haven't. I haven't gotten that  
7 far ahead. I'm still focusing on what I'm doing  
8 right now.

9 Q You can't say as you sit here today that you  
04:07 10 don't intend to bid on any of that, can you?

11 A I would never say I don't intend to bid on  
12 any potential opportunity, but right now I haven't  
13 given it any serious consideration.

14 Q A \$4 million remedial design contract would  
04:07 15 be an awfully large project for Kane Environmental,  
16 wouldn't it?

17 A Kane Environmental is a growing young  
18 company. It may not be so big two or three years  
19 from now, I don't know.

04:08 20 Q That would be a good piece of business,  
21 wouldn't it?

22 A For anybody.

23 Q Same with the \$4 million project management  
24 fees?

04:08 25 A Sure. For any company large or small that

1 would be a large contract.

2 Q Let's look back at your report at pages 10  
3 and 11. You have two opinions there under part 4.  
4 4a is "Restoring Surface Soil to Background Levels of  
04:08 5 Arsenic and Other Heavy Metals is Feasible and  
6 Practicable," right?

7 A Yes, uh-huh.

8 Q And 4b is "Restoring Shallow Groundwater to  
9 Background Levels of Arsenic and Other Heavy Metals  
04:09 10 is Feasible and Practicable," right?

11 A Yes.

12 Q What do you mean by "feasible"?

13 A What I mean by "feasible" is that it can be  
14 done.

04:09 15 Q What do you mean "can be done"?

16 A It's not technically impracticable or there  
17 are no engineering reasons why it couldn't be done.

18 Q So you said "not technically impracticable"  
19 is your definition of "feasible." Does that mean  
04:09 20 that you view "feasible" and "impracticable" as  
21 essentially meaning the same thing?

22 A I think -- well, close, but the reason I  
23 have the two different words, meaning it's feasible  
24 and that it can be done impracticable, is that it's a  
04:10 25 practicable application. It's not an unknown

1 technology. It's been done before. It's a known  
2 technology that's been around for -- and used in the  
3 industry for a number of years, so it's not a new,  
4 innovative research and development project. It's  
04:10 5 something that's been done.

6 Q When you accepted this assignment from  
7 plaintiffs' counsel, were you open to the possibility  
8 that restoration of contaminated soils might not be  
9 feasible and practicable?

04:10 10 A Well, before we did any investigation in any  
11 of the sites, we weren't aware of any reasons that it  
12 couldn't be done. So when I took on the project, I  
13 wasn't aware of any issues in the town of Opportunity  
14 or Crackerville that would keep us from doing any  
04:11 15 kind of remediation or restoration activity. And  
16 then after doing the work and working out there for  
17 about a month, I came to the conclusion that that was  
18 the case, that I didn't see any reason why something  
19 couldn't be done, that something would be feasible or  
04:11 20 practicable until you do that in those locations.

21 Q Well, did you view your assignment in this  
22 case to support plaintiffs' argument that restoration  
23 of soil was feasible and practicable?

24 A Could you explain that, your question? I'm  
04:12 25 not exactly sure what you are asking me.

1 Q Well, it's really the other side of the  
2 question that I asked you a moment ago, whether when  
3 you accepted this assignment --

4 A Uh-huh.

04:12 5 Q -- you had an open mind as to whether  
6 restoration of soils would be feasible and  
7 practicable or not?

8 A Uh-huh.

9 Q Can you answer that question?

04:12 10 A Yeah, I think I can. And I think I had an  
11 open mind going into it thinking that it could go  
12 either way. Like I was talking either -- I was  
13 talking to you before when I said -- when we started  
14 sampling we didn't know for sure if it was going to  
04:12 15 be significant concentrations of arsenic in the upper  
16 couple feet or so compared to deeper. We didn't  
17 know. So we were open to what we could find based  
18 on, you know, our investigations, yeah.

19 Q Well, since you approached the project with  
04:12 20 an open mind, can you tell me what evidence that you  
21 looked for, you know, what would you have had to see  
22 in order to come to the conclusion that restoration  
23 of soils to background levels was not feasible and  
24 practicable?

04:13 25 A Oh, yeah. Well, I mean, to the extreme, you

1 know, if the sites were covered in concrete or  
2 something like that and was kind of impracticable to  
3 dig up two feet of concrete to, you know, get soil  
4 underneath that.

04:13 5 But I mean, I'm not really sure of the  
6 question you are asking. It's -- I mean, I knew  
7 going into it that we were talking about residential  
8 yards so I can't really -- I mean, it didn't really  
9 cross my mind really, even though we were open-minded  
04:14 10 about what could be done there, that something  
11 couldn't be done. We didn't see anything that would  
12 keep us from doing some kind of restoration activity.

13 So that's the best I can answer your  
14 question.

04:14 15 I can't make up something to say what would  
16 happen if -- what would have to be there for us to do  
17 nothing, so I don't know. I'm not sure I answered  
18 your question.

19 Q So short of visiting the site and finding it  
04:14 20 covered in two feet of concrete, you are going to  
21 find that the restoration to background levels in  
22 soil was feasible and practicable?

23 A Well, no, that's not the case. Like I said,  
24 I -- when we went into it, I wasn't exactly sure if  
04:14 25 we were going to find or be able to really determine

1 background concentrations when we started it. That's  
2 why we approached it that way, the way we did, was to  
3 see if it was a way that we could establish  
4 background, and we found a way by looking at our data  
04:15 5 results and realizing that, yes, indeed, based on  
6 those results we could establish a background  
7 concentration for both groundwater and soil and so --  
8 all right.

9 So an example would be when I first started  
04:15 10 it, I wasn't sure we would have data from the state  
11 of Montana that would be groundwater sampled from the  
12 drinking water wells in Opportunity. I found that  
13 out after working on the project for a couple months.  
14 And we thought that would be a good way to establish  
04:15 15 background.

16 Q So if there hadn't been existing data to  
17 determine -- well, we're talking about soils now.

18 A I was telling you, you know, both soil and  
19 groundwater. But go ahead, I'm sorry.

04:15 20 Q Well, you relied on your own data to  
21 determine what you believe is background for soils?

22 A That's correct, yeah, uh-huh, yeah.

23 Q So you are saying that if for some reason  
24 you had been unable to determine what background was,  
04:16 25 then you might not have found that restoration was



1 feasible and practicable?

2 A Well, I think it's the same answer, like I  
3 said earlier today about the concept of going in and  
4 just taking a look at average concentrations for each  
04:16 5 of the different sampling horizons. And if they had  
6 all been within about the same average, really no big  
7 difference, there wouldn't have been I think a case  
8 for establishing a background to say that, you know,  
9 this zone is hotter than this zone because it was all  
04:16 10 the same. But that's not what we found.

11 But we certainly went into it thinking,  
12 well, it's possible we may not see elevated  
13 concentrations in the upper couple feet, for example.  
14 It may all be the same, you know, at one foot  
04:16 15 compared to five or six feet. You know, we didn't  
16 know until we did the work.

17 Q Well, the scenario you are describing, no  
18 cleanup would be necessary because the whole thing  
19 would already be at background, right?

04:17 20 A Well, that's right. Yeah, if the numbers  
21 that we are calling as background from samples  
22 collected deeper in the soil column were within the  
23 same range as the numbers we found in the upper  
24 couple of feet, then there wouldn't be an issue of  
04:17 25 above background. The whole thing would be

1 considered probably naturally background or certainly  
2 not impacted from other sources.

3 Q Well, that's not quite what I'm asking.

4 A Oh.

04:17 5 Q I'm asking, you know, what would you have  
6 had to find to determine that some kind of  
7 restoration remedy to background for soils --

8 A Yeah.

9 Q -- is not feasible or practicable?

04:17 10 MR. KOVACICH: Objection. I think he has  
11 already answered it and it's calling for speculation  
12 and it's a vague question.

13 THE WITNESS: I am trying to answer your  
14 question. I'm just getting a little confused about  
04:18 15 what you are asking me.

16 So I think I've answered the question that  
17 we went in not knowing what we were going to find  
18 when we looked at either shallow soils or deeper  
19 shallow soils. We didn't know until we actually did  
04:18 20 the work.

21 BY MR. RAUCHWAY:

22 Q Short of the example you provided finding  
23 the site was covered in two feet of concrete, can you  
24 think of any scenario in which you would have  
04:18 25 determined that restoration to background of soils

1 was not feasible or practicable at this site?

2 MR. KOVACICH: Objection. It's vague and  
3 speculative.

4 THE WITNESS: Actually that was -- that was our  
04:18 5 intent going into it as far as our scope of work and  
6 approach. I can't think of any reason, other than  
7 the reason I've given you, of why that would be  
8 different or not practicable.

9 BY MR. RAUCHWAY:

04:19 10 Q Did you consider the total cost of your  
11 proposed soils remedy in deciding that it was  
12 feasible and practicable?

13 A The cost was the cost I came up with based  
14 on my evaluation of what it would take to remove the  
04:19 15 soil and clean up the groundwater to background. I  
16 didn't then say, well, that's either too little or  
17 too much. It was just that's the cost that I  
18 established based on my knowledge of the site.

19 Q So in coming up with your opinion that the  
04:19 20 soils remedy is feasible and practicable, you didn't  
21 consider what it would cost when you arrived at that  
22 opinion?

23 A No. The cost was not a consideration as far  
24 as the feasibility and practicability.

04:20 25 Q Again, your soils remedy, your proposed

1       soils remedy is \$51.6 million?

2           A     Uh-huh.

3           Q     If it had been 10 times that, over half a  
4       billion dollars, that wouldn't affect your opinion as  
04:20 5       to whether it's feasible or practicable?

6           A     Well, it would have to be a heck of a lot  
7       larger site or a lot deeper excavation, but the point  
8       of the -- of my estimate was to establish enough --  
9       well, establish the cost of doing the scope of work  
04:20 10       to reach our goal of restoring the sites to  
11       background.

12          Q     Let me ask you about your groundwater  
13       remedy.

14          A     Sure.

04:21 15          Q     Were you open to the possibility when you  
16       accepted this assignment that restoring the shallow  
17       groundwater to background levels might not be  
18       feasible or practicable?

19          A     Yes, I would say so. When I walked into it,  
04:21 20       I wasn't sure what type of remedy could be used to  
21       deal -- if the groundwater was a problem, what kind  
22       of remedy could be used. I didn't know.

23          Q     Okay. What would you have had to find in  
24       order for you to arrive at the opinion that  
04:21 25       restoration of shallow groundwater to background

1 levels was not feasible and practicable?

2 MR. KOVACICH: Objection. That's the same vague  
3 question, calling for speculative testimony.

4 THE WITNESS: I -- I mean, I can't think of any  
04:22 5 reason right now of what I would have thought of  
6 being something that was not technically possible.

7 And the reason I say that is because I've  
8 worked on sites that were difficult sites in cleaning  
9 up, but there's always been a way to approach the  
04:22 10 clean-up problem to address the contamination. And  
11 so I don't -- I had no thoughts or discussion with  
12 others to determine that something couldn't be done.  
13 That's not how I approached it. And the more that I  
14 looked at the problem, the more I realized that I  
04:23 15 thought that there were solutions to groundwater and  
16 soils restoration.

17 BY MR. RAUCHWAY:

18 Q In arriving at your opinions that  
19 restoration of soil and shallow groundwater is  
04:23 20 feasible and practicable for the plaintiffs'  
21 properties --

22 A Uh-huh.

23 Q -- did you compare the cost of your proposed  
24 remedy to the value of the properties at issue?

04:23 25 A I did not. No, not at all.

1 Q So the types and value of the properties at  
2 issue is irrelevant to your opinion as to whether the  
3 restoration is feasible or practicable; is that fair?

4 MR. KOVACICH: Objection; that's compound.

04:23 5 THE WITNESS: I was representing, you know,  
6 60-plus properties where they don't want the  
7 contamination on their property anymore that are  
8 above backgrounds. That's my job. And I've come up  
9 with a couple of approaches to solve that problem.

04:24 10 No one told me that because they're poor or  
11 their property is worthless that they don't deserve  
12 the opportunity as citizens to live on clean  
13 property, that they consider clean. And that is not  
14 a consideration from my point of view in doing this  
04:24 15 work.

16 BY MR. RAUCHWAY:

17 Q So do you think a billion-dollar restoration  
18 would be reasonable for a set of properties that were  
19 worth an aggregate of a million dollars?

04:24 20 MR. KOVACICH: Objection; it's vague, calling  
21 for speculation and it's really argumentative.

22 THE WITNESS: Yeah. I think any American -- all  
23 Americans are due process to have their property be  
24 clean.

04:25 25 BY MR. RAUCHWAY:

1 Q You think all Americans have a due process  
2 right to have their properties clean to background?

3 A I think it's anybody in this country has the  
4 right to live on clean property.

04:25 5 Q Clean to background?

6 A In this case it's clean to background, this  
7 specific case. But you are asking me these general,  
8 vague questions, so I'm responding the best I can to  
9 political and ethical questions are being asked me.  
04:25 10 So that's my response.

11 Q No. I'm asking you for the basis for your  
12 opinion that this restoration is feasible and  
13 practicable.

14 A Well, I've told you, because I've come up  
04:25 15 with an approach that I think both approaches are  
16 known approaches and actually have been done,  
17 similar, not exactly, already by Arco in Anaconda and  
18 Mill Creek and the PRB wall is a technology that has  
19 been used by others. I just installed one last month  
04:26 20 at a site in Seattle. It's a good technology proven  
21 to work. It's not hard to do. It's --

22 Q How many PRB walls have you worked on?

23 A One.

24 Q And was that in a residential property?

04:26 25 A It was a commercial property and it wasn't

1       arsenic. It was for a chlorinated solvent  
2       contaminated site. But interestingly enough, the  
3       same PRB wall works both for arsenic and halogenated  
4       compounds.

04:26 5           Q    The one project where you installed a PRB  
6       wall was a dry cleaning facility in a mini-mall?

7           A    Former dry cleaning facility, that's right.

8           Q    And that was just a couple hundred feet in  
9       length, right?

04:26 10          A   That one was actually 100 feet, yes. But 30  
11       feet deep.

12          Q    You say here that your "Soils removal is  
13       estimated to take 20 months and installation of the  
14       PRB wall is four to six months," right?

04:27 15          A   Yes.

16               Excuse me. Could you repeat that real quick  
17       again? Sorry.

18          Q    I think I read it right off the page.

19          A    I think you did, too. But just tell me  
04:27 20       where you are.

21          Q    "Soil removal is estimated to take 20 months  
22       and installation of the PRB wall is four to six  
23       months."

24          A    That's right. Yes. That's right.

04:27 25          Q    So in total, your proposed remedy, if all



1 goes according to plan, would be about two years?

2 A Looks like probably two and a half years.

3 The reason I used 20 months is -- and I didn't say

4 this in here, but I made an assumption that two

04:27 5 months out of the year probably not a lot of activity  
6 due to weather.

7 Q Short construction season?

8 A Sure. Yeah.

9 Q Is there some length of time, whether it be  
04:28 10 four years, five years, six years, that the  
11 restoration might take where you would then determine  
12 that it was not, in fact, feasible and practicable?

13 A You mean after it had been -- the work had  
14 been done? Is that what you are asking me? I'm  
04:28 15 sorry. I don't understand your question.

16 Q No. On the front end --

17 A Right.

18 Q -- in the course of your analysis and your  
19 conclusion that your proposed restoration is feasible  
04:28 20 and practicable --

21 A Yeah.

22 Q -- is there some length of time that had you  
23 come up with that you would have determined it was  
24 not feasible and practicable?

04:28 25 A No, no, not -- no, don't think so, no. I

1 still think it's feasible and practicable.

2 Q I think we touched on this earlier today,  
3 but you're aware that EPA has examined the proposed  
4 PRB wall south of Opportunity and determined that it  
04:29 5 is technically impracticable from an engineering  
6 standpoint, right?

7 A It's my understanding that they waived the  
8 shallow groundwater cleanup entirely and that any  
9 groundwater cleanup approach is not being considered  
04:29 10 by EPA at this time.

11 Q That wasn't my question. My question is  
12 whether they specifically considered a PRB wall south  
13 of Opportunity and determined that it was technically  
14 impracticable from an engineering standpoint.

04:29 15 Are you aware of that?

16 A I'm not aware of the details of why they  
17 came to that conclusion. I look at the site and I --  
18 I see a straight -- well, in particular on Highway 1,  
19 a straight piece of land where a 15-foot wall that's  
04:30 20 about three-feet wide with a trenching device can be  
21 installed about -- let's see. Yeah, 8,000 feet long,  
22 which is actually shorter than what EPA had or --  
23 yeah, EPA and CDM had in their report to deal with  
24 Opportunity because their wall was -- went along  
04:30 25 Highway 1 but then kind of went south like a hook, so

1 it was much longer than what I'm proposing.

2 So I -- my evaluation of it is that it is  
3 possible to do this. It's only 15 feet deep and,  
4 like I said, I just did one 30 feet deep in glacial  
04:31 5 till and it's almost hard as a rock, and this would  
6 be a lot easier compared to that because it is  
7 alluvium which is loose soils and cobbles. So from  
8 my approach, I think this is a viable option.

9 Q Well, before we get into the details of why  
04:31 10 EPA came to the conclusion that it did, are you aware  
11 that EPA determined that a PRB wall was technically  
12 impracticable from an engineering standpoint to  
13 remediate the groundwater in South Opportunity?

14 MR. KOVACICH: Objection. It's been asked and  
04:31 15 answered multiple times, including a few hours ago.

16 MR. RAUCHWAY: Asked, not answered.

17 MR. KOVACICH: It's been answered.

18 THE WITNESS: Well, I mean, my point of view is  
19 they just gave up, that's what I'm trying to say.  
04:32 20 They waived it. So I don't really see that as a real  
21 robust engineering solution.

22 BY MR. RAUCHWAY:

23 Q Let's look at the document.

24 A Sure.

04:32 25 MR. RAUCHWAY: 5?

1 THE REPORTER: Yes.

2 (Deposition Exhibit 5 was  
3 marked for identification and is  
4 attached hereto.)

04:32 5 BY MR. RAUCHWAY:

6 Q Mr. Kane, Exhibit 5 is an excerpt of EPA's  
7 Technical Impracticability Evaluation Report.

8 Have you seen this document before?

9 A I have, yes.

04:32 10 Q Have you read this document before?

11 A I have.

12 Q And this document discusses a PRB wall. If  
13 you look at the second page -- or the third page of  
14 the exhibit, there's a section under "Permeable  
04:32 15 Reactive Barriers," right? Those are PRBs, right?

16 A That's right, yes.

17 Q And they are discussing a zero valent iron  
18 wall much like the one you are proposing in this  
19 case, right?

04:33 20 A Well, they are calling it the same thing,  
21 yes, that's right. Yeah.

22 Q And if you look at section 8, "Summary and  
23 Conclusions," which is a few pages later in the  
24 document.

04:33 25 A Yeah, uh-huh.

1 Q Do you see that heading?

2 A Yes, I do.

3 Q The first sentence in the second paragraph  
4 is "This evaluation concludes that it is technically  
04:33 5 impracticable from an engineering perspective to  
6 reduce arsenic concentrations below 10 parts per  
7 billion in groundwater within the South Opportunity  
8 TI zone."

9 Do you see that?

04:33 10 A Yeah, I do see that.

11 Q That was the conclusion EPA came to, right?

12 A Uh-huh, yeah, that's what they say.

13 Q And they concluded that it was technically  
14 impracticable to reduce arsenic concentrations in the  
04:33 15 groundwater, including through the use of the PRB  
16 wall that you propose in this case, right?

17 A Uh-huh, I see that.

18 Q And you disagree with that conclusion,  
19 right?

04:34 20 A I do, because actually EPA had a study in  
21 2008, a little earlier than this, over in East Helena  
22 where they did do a pilot test of a PRB wall in  
23 East Helena to reduce arsenic concentrations, and it  
24 was successful in the pilot test. So I think they  
04:34 25 are contradicting themselves. I mean, it's okay in

1 East Helena, but it's not in South Opportunity? I  
2 don't know why. It's a smelter in East Helena that  
3 they did the pilot test. They didn't even bother to  
4 do a pilot test here. They are just saying it's not  
04:34 5 practicable, but they didn't do a pilot to determine  
6 whether or not it was practicable. And the pilot  
7 that they did do in East Helena worked, so that's why  
8 I disagree with this conclusion.

9 Q Do you think you know more about this site  
04:34 10 than EPA does?

11 A Know more about this site? You mean the  
12 South Opportunity site, is that what you are asking  
13 me?

14 Q Sure. Yeah.

04:35 15 MR. KOVACICH: Let me object. It's a vague,  
16 argumentative question.

17 THE WITNESS: I have my own opinions about this  
18 property. And when you say "EPA" usually that means  
19 multiple people over a period of years have worked in  
04:35 20 this area and many of them go on to other things and  
21 actually don't work on properties or sites for very  
22 long because they are promoted or go other places.

23 So I would say I am -- in some cases I'd  
24 probably know more or just as much as anybody at EPA  
04:35 25 about this area at this point from the amount of work

1 that I've done here.

2 THE VIDEOGRAPHER: Pardon me. One minute  
3 remaining.

4 MR. RAUCHWAY: Why don't we let Brook change the  
04:35 5 tape.

6 THE VIDEOGRAPHER: Going off the record. The  
7 time now is approximately 4:36 p.m. This is the end  
8 of disk 3 in the deposition of John Kane.

9 (Off the record.)

04:47 10 THE VIDEOGRAPHER: Going back on the record.  
11 The time now is 4:48 p.m. This is the beginning of  
12 disk number 4 in the deposition of John Kane.

13 BY MR. RAUCHWAY:

14 Q Mr. Kane, the opinion that you are offering  
04:48 15 in this case that restoring the groundwater in  
16 South Opportunity is feasible and practicable is  
17 directly contrary to the conclusion that EPA arrived  
18 at after studying the same area, right?

19 A Yeah, that appears to be the case. EPA says  
04:48 20 it's not a valid approach.

21 Q And the opinion that you're offering in this  
22 case that a PRB wall specifically is a practicable  
23 solution to this problem is also directly contrary to  
24 the conclusion that EPA arrived at?

04:48 25 A Yes, it is, yeah. Appears to be that case,

1       yes.

2               Q     I would like to get some of the basic facts  
3       on the sampling that you conducted in this case to  
4       make sure that I fully understand it.

04:49 5               A     Sure.

6               Q     As I construe your reports, there were five  
7       separate rounds of sampling that you conducted; is  
8       that right?

9               A     Investigation of both soil and/or  
04:49 10       groundwater.

11              Q     I think I'm talking about all types of  
12       media.

13              A     Yes, I think that's right.  Yeah, if you  
14       include soil, groundwater, dust sampling, a couple  
04:49 15       rounds of groundwater sampling, yes, yeah.  Yes.

16              Q     The first round was in June of 2012?

17              A     Yes.

18              Q     And that was soil and groundwater, right?

19              A     Correct.  Yeah.

04:49 20             Q     And the second round was in October of 2012?

21              A     That's correct.

22              Q     And that was also soil and groundwater?

23              A     Yes.

24              Q     And then you did a third round in March of  
04:50 25       2013, right?



1           A    Yes.

2           Q    And that was soil, groundwater and dust?

3           A    Yes.  Limited groundwater and limited soil.

4           It wasn't a full round like the other previous rounds

04:50 5           of groundwater, but it was another round of sampling,

6           yes.

7           Q    And then a fourth round -- and when I use

8           the word "round" I just mean went out there again.

9           A    That's right, yeah.

04:50 10          Q    The fourth round was April 2013?

11          A    That's my understanding, yes.

12          Q    And that was groundwater only?

13          A    Yes, I believe so.

14          Q    And that was --

04:50 15          A    Well, no, might have included soil, too.

16          Q    That was the one that was just for the Gress

17          property?

18          A    That's right, yeah.

19          Q    And then the fifth round was in May of 2013,

04:50 20          right?

21          A    May of 2013, yes.

22          Q    And that was just dust?

23          A    That's right.

24          Q    Have you done any sampling subsequent to

04:50 25          your efforts in May of 2013?

1 A No, we haven't.

2 Q Do you presently contemplate doing  
3 additional sampling to support your opinions in this  
4 case?

04:51 5 A Not at this time.

6 Q Why did you do that separate round in April  
7 of 2013 just for the Gress property?

8 A We used the Geoprobe sampler truck to sample  
9 soil and install groundwater wells, and we found that  
04:51 10 we reached drilling refusal at shallow depth at the  
11 Gress property and we thought that we were within  
12 five feet or so of reaching the shallow groundwater,  
13 so we decided to go back with a -- a -- not an auger  
14 rig but an air rotary rig to go deeper to reach  
04:51 15 groundwater, and that's where we needed to go deeper  
16 than what the Geoprobe could do before -- since it  
17 hit drilling refusal at a shallow depth.

18 Q Why did you go back out again in March of  
19 2013 to do additional sampling?

04:52 20 A If I remember there was one or two  
21 properties where we had inadvertently not sampled on  
22 the plaintiff's property, and we went back to  
23 complete that.

24 Q Have you produced or at least given to your  
04:52 25 attorneys all of the data that you obtained from all

1 five rounds of sampling?

2 A Yes. They should have everything that we've  
3 done.

4 Q How about all of the field notes, have you  
04:52 5 given that to your attorneys?

6 A The field notes? The actual handwritten  
7 field notes? I don't recall if I actually sent  
8 those, because those were primarily the well logs and  
9 soil boring logs is what they were, so that  
04:53 10 information that's transferred from the actual notes  
11 is in the report as a formal soil boring log.

12 Q They are also the original notes from which  
13 those exhibits were created?

14 A There are, yeah. Uh-huh, for each site  
04:53 15 there's original handwritten sketches and that's  
16 created these -- that's what we created these off of,  
17 yeah.

18 Q And did you maintain those documents?

19 A Yes, uh-huh, we have those.

04:53 20 Q How about lab analytical reports, have you  
21 given all of those to your attorneys?

22 A Yes, they should have everything.

23 Q How about data quality evaluation reports?

24 A They should have everything, yeah. Well,  
04:54 25 they should -- yeah.

1 Q I'm looking at the last page of your first  
2 report, page 12. You have an opinion about dust in  
3 plaintiffs' residences.

4 A Yeah.

04:54 5 Q And you say concentrations of arsenic and  
6 heavy metals were found in that dust, right?

7 A Yes.

8 Q Why did you wait until March of 2013 to do  
9 this dust sampling?

04:54 10 A We wanted to be as close -- well, let me  
11 state that again.

12 We wanted our investigation to mimic or to  
13 be as close as scope as the Pioneer work that was  
14 being done by Arco, and we realized they had done  
04:54 15 some indoor sampling and we hadn't done that. So we  
16 thought it would be a good idea to go and do the  
17 indoor sampling to at least be -- you know, establish  
18 the similar scopes of work by both companies.

19 Q When I looked at your original data, it was  
04:55 20 in micrograms per wipe --

21 A Correct.

22 Q -- is that right?

23 A That's right.

24 Q And then in some of your validation reports  
04:55 25 it's converted to micrograms per square foot?

1 A Yes.

2 Q How did you perform that conversion?

3 A Part of the sampling included not only  
4 taking the wipes but measuring the area of the dust  
04:55 5 wipes, and then that area was then converted to  
6 square foot and then the lab provided that, you know,  
7 calculation for us when we provided them with the  
8 square metric.

9 Q So do you have some notes that provide what  
04:55 10 the square footage was for each of the wipes?

11 A Yes, we should have that.

12 Q Did you ever -- well, let me back up.

13 As I understand it, your dust wipe analysis  
14 is limited to surface area. There's no volumetric  
04:56 15 quantification; is that true?

16 A That's true, yeah.

17 Q Have you attempted to convert it to a  
18 volumetric quantification?

19 A Well, you can't really, because it's an  
04:56 20 area. It wasn't a measured weight or amount of dust.  
21 It was by area. So there's no conversion really to  
22 be able to do a weight calculation of the metals  
23 concentrations.

24 Q Are you offering any opinions on the dust in  
04:56 25 the plaintiffs' residence beyond the fact that

1 certain constituents are present in that dust?

2 A Yeah. What we're saying with that -- what  
3 I'm saying with the concentrations found is that when  
4 we found concentrations of arsenic, for example, we  
04:57 5 also found concentrations of arsenic, lead, cadmium,  
6 copper and zinc. So we felt that that was  
7 representative of smelter emission dust that somehow  
8 had gotten into some of the residences. But we  
9 didn't -- we didn't attempt to convert that to any  
04:57 10 kind of a part per million analysis of what was found  
11 in soil.

12 Q So if I'm following you, you conclude from  
13 the data that you collected that arsenic and other  
14 metals that you found in this dust were sourced from  
04:57 15 historical smelter emissions?

16 A The same five metals that we were analyzing  
17 for soil and for groundwater were also found in dust  
18 samples, and we know that those five metals were  
19 related to smelter emissions.

04:58 20 Q Your dust analyses had, in many instances,  
21 higher lead concentrations than other metals; isn't  
22 that right?

23 A I think that's the case, yes.

24 Q Did you consider the possibility that that  
04:58 25 lead could be from lead paint?

1           A    I didn't, but because of the presence of the  
2   other metals, if it was just lead paint, I think we  
3   would have just found lead and not copper and zinc  
4   and cadmium. Those aren't constituents of lead  
04:58 5   paint. There's no reason that they would be there.  
6   Lead paint has lead in it and doesn't have copper in  
7   it.

8           Q    Well, did you consider the possibility that  
9   the reason lead was higher than the other  
04:59 10   constituents in some instances was because of the  
11   influence of lead paint?

12          A    I didn't consider that.

13          Q    Beyond what we've already discussed, that  
14   certain concentrations of arsenic and heavy metals  
04:59 15   are in the dust and that you believe those metals are  
16   sourced from historical smelter emissions, do you  
17   have any other opinions related to dust in this case?

18          A    Not at this time.

19          Q    Are you working on additional opinions  
04:59 20   related to the dust?

21          A    I do need to take more time to look at that  
22   dust data. I do agree that I am doing that, but I at  
23   this time don't have any other opinions to provide  
24   about the dust data.

04:59 25          Q    Are you contemplating revising your

1 restoration opinion to accommodate the cleaning up of  
2 indoor dust?

3 A No, not at this time I'm not.

4 MR. RAUCHWAY: Let's mark this as Exhibit 6,  
05:01 5 please.

6 (Deposition Exhibit 6 was  
7 marked for identification and is  
8 attached hereto.)

9 BY MR. RAUCHWAY:

05:01 10 Q Okay. Mr. Kane, Exhibit 6 says it's called  
11 a "Data Quality Evaluation, Opportunity, Montana,  
12 Dust Wipe Sampling - Round 5."

13 A Uh-huh.

14 Q So we're looking at the same thing?

05:01 15 A Yes, uh-huh.

16 Q And for clarity, round 5 refers to not round  
17 5 of dust wipe sampling but round 5 of total sampling  
18 campaigns?

19 A Yes. This is the fifth data evaluation that  
05:01 20 EcoChem did, yes, for this project.

21 Q And the last four pages of this exhibit  
22 contains the table of data from the dust wipes,  
23 correct?

24 A The last four pages, yes, it is, uh-huh.

05:01 25 Q And I think for every one of them, correct



1 me if I'm wrong, it contains a code of "U" or "J" in  
2 the validation qualifier field?

3 A Yeah. That's right.

4 Q And code "U" means the analyte was analyzed  
05:02 5 for but was not detected above the reported sample  
6 quantification limit?

7 A Correct.

8 Q Okay. And "J" means that the numerical  
9 value is an approximation?

05:02 10 A It's an estimated value. The data  
11 validators call it estimated. Means it was detected  
12 and they are estimating that concentration.

13 Q So for every place in this table that  
14 there's a "U," the lab was not able to detect that  
05:02 15 constituent above the sample quantitation limit?

16 A That's correct. Yeah.

17 Q Let's look at an exhibit I'll mark as 7  
18 here.

19 A Can I make a -- well --

05:03 20 Q Sorry?

21 A Sorry. I spoke out of place. Didn't mean  
22 to speak.

23 MR. RAUCHWAY: Let's mark this as Exhibit 7.

24 (Deposition Exhibit 7 was  
05:04 25 marked for identification and is

1 attached hereto.)

2 BY MR. RAUCHWAY:

3 Q Okay. Mr. Kane, this is your sampling  
4 analysis plan for the five rounds of sampling that  
05:04 5 you conducted in this case?

6 A Well, it's the sampling analysis plan for  
7 soil and groundwater sampling. It did not include  
8 sampling for dust.

9 Q Do you have a separate I'll call it a SAP  
05:04 10 for your dust selection?

11 A No, I don't think we really did one.

12 Q Okay. If you look at section 3.5 of your  
13 soils and groundwater SAP --

14 A Yes.

05:04 15 Q -- there's a heading that relates to well  
16 development for your groundwater wells?

17 A Yes.

18 Q Were those procedures followed when you  
19 drilled your groundwater wells?

05:05 20 A For development?

21 Q Yes.

22 A Yes. My understanding is that at every well  
23 a minimum of three well casings. There may have been  
24 in some instances even more than three well casings  
05:05 25 were removed, but that's the approach that was used

1 on each well from my recollection, yeah.

2 Q And the last line in that section says that  
3 "Well development activities will be recorded on a  
4 well development form."

05:05 5 A Uh-huh.

6 Q Do you have well development forms for your  
7 wells?

8 A We have that -- well development forms that  
9 has those parameters on them, yeah, uh-huh, for each  
05:05 10 well.

11 Q And have you provided those to your  
12 attorneys?

13 A Yes, I have.

14 Q Under section 5.2 there's some more  
05:06 15 procedures for groundwater sampling and analysis.

16 Do you see those?

17 A I do see that, yes.

18 Q And there's a reference there to  
19 "Groundwater parameters that will be logged on  
05:06 20 approximate five-minute intervals as the constituents  
21 stabilize."

22 A Yes, that's right.

23 Q What parameters does that refer to?

24 A The parameters mentioned before in that  
05:06 25 previous section that you addressed of pH,

1 conductivity and temperature at a minimum. I think  
2 we also may have -- no, I think it was just those  
3 three, if I remember right.

4 Q Is there someplace in the SAP that defines  
05:06 5 those parameters that will be monitored until they  
6 stabilize?

7 A Parameters. The groundwater parameters --  
8 well, the groundwater parameters are those three  
9 described in section 3.5, pH, conductivity and  
05:07 10 temperature.

11 So those are -- the following field  
12 parameters, pH, conductivity and temperature, so  
13 that's what we're referring to when we say  
14 groundwater parameters.

05:07 15 Do you see what I mean?

16 Q I do.

17 A Okay.

18 Q So turbidity was not one of the parameters  
19 that was stabilized through purging?

05:07 20 A I don't think we looked at turbidity, only  
21 those three.

22 Q There's a reference in section 6.3.1 to  
23 field notes.

24 A 6.3.1 field documentation or field -- 6.3.1,  
05:08 25 field documentation?

1 Q Yes.

2 A All right.

3 Q Were these -- were raw field notes taken in  
4 the course of your sampling?

05:08 5 A They were. And they were the same notes  
6 that -- where we marked the soil boring log  
7 information so all notes were taken on the same  
8 information. So those logs had -- I mean, the field  
9 notes had not only information about the well that  
05:08 10 was installed as, you know, total depth and screening  
11 depth and that kind of thing but also had notes about  
12 the locations of samples where they were collected,  
13 northeast and where they were collected, a sketch of  
14 each location of where the soil boring or well is  
05:09 15 located, for example, from the corner of a house  
16 measured with tape, that kind of thing.

17 Q And if I understood your previous testimony,  
18 those field notes were turned into the typed up and  
19 computer generated versions that were attached to  
05:09 20 your first report?

21 A Well, the well logs were, not necessarily --  
22 some of the other notes that might have been on those  
23 pages, like the sketches and that kind of thing, were  
24 transferred to those memos that we provided. So we  
05:09 25 use that information to create the memos for each

1 property.

2 Q Looking at section 6.4.3 which deals with  
3 data validation --

4 A Yes, I see that.

05:10 5 Q -- do you have data validation reports for  
6 all five rounds of sampling that you have undertaken?

7 A Yes. We did 100 percent data validation on  
8 all usable data.

9 Q Did you acidify your water samples before  
05:10 10 you sent them to the lab?

11 A Yes, we did.

12 Q Did you filter your samples before you  
13 acidified them?

14 A We did not.

05:10 15 Q When you acidify a water sample, it releases  
16 whatever metals are contained in the suspended solids  
17 in the sample; isn't that right?

18 A Yes, it's true. It's called total metals.

19 Q In other words, it makes the metals in the  
05:11 20 dirt that are suspended in the water go into  
21 solution, right?

22 A It's the same way that the drinking water  
23 wells in Opportunity and Crackerville were sampled by  
24 the state. Those were all total recoverable metals.  
05:11 25 So in order to keep to the same apples to apples in

1 comparison, we used total recoverable metals in our  
2 samples so we could compare them to state samples --  
3 the data that was provided in the state database.

4 Q Well, before we get to that, let's make sure  
05:11 5 we are agreeing on what's happening here.

6 A Yeah.

7 Q When you acidify a water sample without  
8 first filtering it, it makes the metal -- whatever  
9 metal may be in the dirt that's suspended in the  
05:11 10 water go into solution, right?

11 A Well, that's why you purge and develop  
12 wells -- or develop and then purge wells is to  
13 minimize any kind of turbidity in the well so you  
14 have a clear water sample when you are collecting  
05:11 15 that sample. And after you do that, you collect the  
16 sample so it's acidified and then you compare that to  
17 in some cases -- in this case the state groundwater  
18 samples collected in Opportunity which were also  
19 total recoverables. So if I had filtered them, it  
05:12 20 would be apples and oranges. It wouldn't be the same  
21 type of sample collected.

22 Q Well, total metals makes sense in the  
23 context of drinking water because you are actually  
24 ingesting it, right?

05:12 25 A That would be correct, yeah.

1 Q But no one's ingesting the shallow  
2 groundwater in Opportunity, are they?

3 A Well, I had to take a look at the same type  
4 of analysis that was done on the groundwater samples  
05:12 5 that the state had in their database or else it would  
6 be invalid to compare dissolved and total numbers.  
7 It would -- it doesn't mean anything. They --  
8 however they did it, they did the same thing. I  
9 didn't observe them doing it, but they -- if they did  
05:13 10 it the same way, they would have added acid to the  
11 groundwater -- the drinking water sample they  
12 collected from each of the wells after collecting it  
13 to preserve it. I mean, it's a preservation process  
14 so that the sample holding time actually increases by  
05:13 15 adding the acid to the groundwater sample.

16 Q You mentioned something about purging the  
17 wells to reduce the turbidity a minute ago.

18 A Uh-huh.

19 Q Can you explain what you mean by that?

05:13 20 A Yeah. With the peristaltic pump, we removed  
21 at minimum the three well volumes after the well had  
22 been developed. And develop means that whatever it  
23 takes, you are removing water from the well to remove  
24 excess sediments, silts and other fine particles from  
05:13 25 the well inside the well, so that the water is



1 formation water. So that is pumped out and then when  
2 we actually go back a couple days later, we go  
3 through a similar process. We go through and purge  
4 the well. It's really the same thing, it's just a  
05:14 5 different name for each process. The development is  
6 usually meant to get really a lot of sediments that  
7 might be in the well during the installation of the  
8 well immediately after it's been installed. It's  
9 really the same thing. You are pulling water out of  
05:14 10 the well to get formation water to come in.

11 And keep in mind all of these were also  
12 pre-screened or pre-packed screened, excuse me. What  
13 that means is that a very tight sand pack around each  
14 well was installed on the well itself as it was  
05:14 15 placed into the ground, so similar to the way Pioneer  
16 did it, so that a lot of the fine and small particles  
17 are screened out before -- you know, as they enter  
18 into the well where we pull the sample. So it's a  
19 representative sample of formation water.

05:15 20 Q And "turbidity" refers to the clarity of the  
21 water, right?

22 A The amount of material in the water, yeah.  
23 How clear it is, that's right, yeah, when we are  
24 looking at it.

05:15 25 Q In this case, how much dirt is in the well

1 water?

2 A Any fine silts or something like that, sure.

3 Q And the higher the turbidity, the more  
4 suspended solids there are in the sample, right?

05:15 5 A Yeah. The more cloudy it might be, for  
6 example, yeah.

7 Q You had some very high turbidity readings in  
8 your water samples, didn't you?

9 A Like I said, I don't think -- unless I'm  
05:15 10 wrong, I don't think we took turbidity samples. I  
11 think we just did pH, temperature and conductivity.

12 Now, I don't know -- tell me if I've left  
13 out turbidity, but I don't recall we did turbidity.

14 Q Let me show you what I'm thinking of.

05:16 15 A All right. Maybe I'm misunderstanding what  
16 you are calling conductivity or --

17 MR. RAUCHWAY: Let's mark these as 8 and 9.

18 (Deposition Exhibits 8 and 9  
19 were marked for identification and  
05:16 20 are attached hereto.)

21 THE WITNESS: So I apologize. I didn't remember  
22 that we did do turbidity during the groundwater  
23 sampling; so it does look like we did, yes.

24 BY MR. RAUCHWAY:

05:16 25 Q Looking at the first page of Exhibit 8 --

1 and maybe we should identify them very quickly.

2 Exhibit 8 is your groundwater monitoring  
3 field data form for your June 2012 sampling?

4 A Yes. I see a date of June 26, 2012, yes.

05:17 5 Q And Exhibit 9 is a compilation of your  
6 groundwater monitoring field data forms for October  
7 of 2012, right?

8 A That's right, yeah, uh-huh.

9 Q And looking at the first page of Exhibit 8  
05:17 10 there --

11 A Uh-huh.

12 Q -- you have some readings under  
13 "Turbidity" --

14 A Uh-huh.

05:17 15 Q -- at the looks like negative 5 or something  
16 like that?

17 A Yeah, uh-huh.

18 Q Does that mean it pegged the turbidity  
19 meter?

05:17 20 A I don't know. I do notice that it does say  
21 "turbid" and then the next line does say "clear."

22 Q And they're turbidity readings measured in  
23 NTUs in that column?

24 A Yes.

05:18 25 Q What does "NTU" stand for?

1           A    I can't pronounce it right now, nephro --  
2           I'm sorry. I can't pronounce it.

3           Q    It's N turbidity units. Nephelometric?

4           A    Yes. Thank you. I'm getting tired.

05:18 5           Q    Quite all right.

6                    So in this case, this particular sample  
7           here, make sure I'm interpreting it correctly, says  
8           the sample time was 1735.

9           A    Yes, uh-huh.

05:18 10          Q    So that's a few minutes after the last  
11          turbidity reading in that column, right?

12          A    That's correct, yeah.

13          Q    So the turbidity was somewhere in the 300  
14          NTU range --

05:18 15          A    That's correct.

16          Q    -- when you took that sample?

17          A    That's right, yeah.

18          Q    300 NTUs is pretty turbid, isn't it?

19          A    Pretty turbid. I don't know. I mean, it  
05:19 20          actually says it's clear. I mean, he didn't -- he  
21          said it cleared up on the second reading at 1705  
22          where it says "clear," so I am making the assumption  
23          it stayed clear all of the way down or else he  
24          probably would have written "turbid" at the time of  
05:19 25          sampling.

1 MR. RAUCHWAY: Why don't we mark this as  
2 Exhibit 10.

3 (Deposition Exhibit 10 was  
4 marked for identification and is  
05:19 5 attached hereto.)

6 BY MR. RAUCHWAY:

7 Q Exhibit 10 is a something I printed out from  
8 the website at NC State, and it has a graphical  
9 representation there, a picture of various turbidity  
05:19 10 levels there measured in NTUs.

11 Do you see that?

12 A Yes, I do.

13 Q And those are the same units that you used  
14 to measure turbidity?

05:19 15 A I believe so, yes, but I didn't do the  
16 sampling. I wasn't there, so I can't answer that  
17 completely. But I believe that is true, yeah. Yeah.

18 Q So 300 NTUs is somewhat more turbid than the  
19 250 NTU picture that you see here on Exhibit 10?

05:20 20 A Yeah. Yeah. All I can tell you is that if  
21 he wrote down it was clear, I would assume that it  
22 was still clear at the time of sampling, but I can't  
23 tell from this particular, you know, result -- I  
24 mean, it says well condition was good so I assume  
05:20 25 also that means that the water sample was clear when

1 collected.

2 Q When your sampler wrote down "728," "461,"  
3 "383," "362" and "310" in the NTU column, are you  
4 also assuming that that was the actual turbidity  
05:20 5 measurement of those -- of the water at that time?

6 A Yeah. Yeah. Probably was, yeah.

7 Q Looking on Exhibit 9, a couple other  
8 examples here.

9 A Uh-huh.

05:21 10 Q Unfortunately these aren't numbered.  
11 Can you look at the eighth page of  
12 Exhibit 9, please?

13 A Uh-huh. That's double-sided but still the  
14 eighth page?

05:21 15 Q Yes. Eighth physical page.

16 A Okay. Yeah. Okay. So the ninth page of  
17 it.

18 Q I'm looking at the page that has some  
19 marginality at the top.

05:22 20 A Oh, yeah.

21 Q SIM 501 MW1? Do you see that?

22 A Yeah, 501 number. Yes, got it.

23 Q And it looks like there the turbidity of  
24 your sample was somewhere in the 250 NTU range when  
05:22 25 you took it?

1 A That's correct, yeah.

2 Q And a few pages later, you have a site name  
3 that's OPP HEN 1201.

4 Do you see that?

05:22 5 A OPP. What is it again, H-E-N, HEN, 1201, I  
6 see that, uh-huh.

7 Q Again the turbidity units were somewhere in  
8 the 300 range when you took that sample?

9 A Yes. It looks like it says "317," yes.

05:23 10 Q And on the following page, same thing, the  
11 300 range?

12 A Following page, 300 range. The one that's  
13 VIO 115, do you mean?

14 Q Yes.

05:23 15 A Yeah, uh-huh. Yes.

16 Q And then the following page, 206?

17 A Yes, I see that, uh-huh.

18 Q How about a few pages later, OPP SCH 408?

19 A Yes, I see that.

05:23 20 Q There it shows an NTU reading of 443 NTUs.

21 A That's right, yeah.

22 Q And then on OPP SIL 9 near the end of the  
23 package, it shows a reading of 366 NTUs?

24 A Yes, I see that, uh-huh.

05:24 25 Q So your water samples are measuring a great

1 deal of dirt rather than what's actually in the  
2 water; is that true?

3 A No. In fact, some of the samples -- I mean,  
4 you are going -- finding the highest, but I'm also  
05:24 5 seeing some pretty low turbidity NTU units, too, in  
6 some of these. So I think that's a general statement  
7 that's not accurate. It does appear to be a few  
8 samples that did come back with more of an elevated  
9 NTU number but not all of them.

05:24 10 Q Well, for the samples where the turbidity is  
11 in the 2-, 3- and 400 range, would you agree with me  
12 that you are measuring a lot of what is in the dirt  
13 rather than what is in the water?

14 A Well, no, because I don't know. I don't  
05:25 15 know what the sample looked like. I don't have the  
16 sample in front of me. It's possible at the lab that  
17 they let the sample bottle sit there, so a lot of --  
18 any sediment that was in the bottle fell to the  
19 bottom. I don't know. I can't answer that question.

05:25 20 Q Your opinion on groundwater contamination  
21 depends upon your conclusion that contaminated water  
22 is migrating northward towards the plaintiffs'  
23 properties, right?

24 A Well, what I'm calling contaminated above  
05:26 25 the background level, yes. Yeah.



1 Q Is it your belief that the shallow  
2 groundwater is migrating with this level of suspended  
3 solids in it?

4 A I don't know.

05:26 5 Q Well, it takes a lot of energy to move  
6 suspended solids through the subsurface, doesn't it?

7 A I would think so. It's not really my  
8 belief. I mean, it's -- I'm just looking at the data  
9 results, so we're seeing concentrations above  
05:26 10 background what you are asking me.

11 Q Do you think that shallow groundwater is  
12 migrating in the subsurface with turbidity in the 2-  
13 or 300 NTU range?

14 A I don't know.

05:27 15 Q Do you think the pore spaces in the  
16 subsurface are large enough to accommodate that kind  
17 of a movement of suspended solids?

18 A I don't know.

19 Q How fast do you think this shallow  
05:27 20 groundwater is moving if at all?

21 A I have to -- I read the reports, but I can't  
22 remember what the calculated velocity was of the  
23 shallow groundwater from previous reports. But I'm  
24 confident that's in some of the EPA documents. We  
05:28 25 didn't -- we didn't actually perform any slug tests

1 or pump tests or anything at this time to determine  
2 that. As part of our investigation, we didn't do  
3 that level of detail to figure out groundwater flow  
4 rates.

05:28 5 Q Do you think the shallow groundwater exists  
6 in its natural state with turbidity in the 200 NTU  
7 range?

8 MR. KOVACICH: Objection. I think that's the  
9 same question. It's asked and answered.

05:28 10 THE WITNESS: Yeah, I don't know.

11 BY MR. RAUCHWAY:

12 Q Well, the turbidity that your samplers  
13 observed was caused primarily by your sampling  
14 activities.

05:28 15 Can we agree on that?

16 A They were collected from the wells that we  
17 installed, that's correct, yes.

18 Q Right.

19 But the turbidity was a result of the dirt  
05:29 20 in the water being stirred up by the sampling  
21 activity, right? It's not as if the groundwater down  
22 there naturally has that kind of turbidity in it.

23 A Well, we removed multiple well volumes from  
24 the well and then sampled the formation water, so the  
05:29 25 formation water going into the well may have been at

1       that -- those particular locations for some reason  
2       more fine sediment and silt in them, that's perhaps  
3       true. There may have been in particular locations  
4       more silt, fine silts in the subsurface where the  
05:29 5       groundwater was located than in other locations.  
6       There's certainly some variability in that,  
7       especially in an area that was originally more of a  
8       wetland type area. So having fine particles in the  
9       groundwater wouldn't surprise me in that kind of a  
05:30 10      location.

11           Q     There were instances where your samplers  
12       didn't purge the wells before taking the samples,  
13       aren't there?

14           A     I think there were some where they went dry  
05:30 15      and then when a well goes dry you can consider that  
16      as a purge and then you can sample. There were what  
17      we call weepers, some of those, where just the water  
18      wasn't coming in very quickly so I believe we made a  
19      field call to go ahead and sample the well after it  
05:30 20      had gone dry maybe a couple times. But that's  
21      considered a purge, to remove the water and then if  
22      it goes dry the next water coming in is going to be  
23      formation water.

24           Q     If you look at Exhibit 9 for a minute there.  
05:30 25      I'm looking at the well ID CRA GUS 168.

1           A    How many pages in, do you reckon?

2           Q    Sixth physical page.

3           A    CRA what again?  Sorry.

4           Q    CRA GUS 168.

05:31 5           A    GUS system, yes, uh-huh.

6           Q    Is that an example of where the well was

7           pumped dry and then a sample was just grabbed from

8           whatever water came into the well after that?

9           A    Pumped dry, no reasonable recharge.  Yeah,

05:31 10          whatever they were able to collect from that

11          particular well, yeah.

12          Q    And the notes, the comments there say "too

13          turbid" and there are dashes under the turbidity

14          units there.

05:31 15          A    Uh-huh, yes.

16          Q    Does that mean the turbidity was too high to

17          be measured on the turbidity meter?

18          A    I think that would be the case and, yes,

19          uh-huh.  May have been a lot of still -- some fine

05:32 20          sand or silt still in the sample.

21          Q    How high does the turbidity meter go?

22          A    I don't remember.

23          Q    There were also a couple of occasions where

24          the samplers pumped the well water directly into the

05:32 25          bottle without purging first, weren't there?

1 A I don't recall which wells those were.

2 Q Why don't you look at the second to last  
3 physical page of Exhibit 9.

4 A Yeah. In that case it looks like they were  
05:32 5 just having trouble getting any sample volume at all,  
6 so they took whatever was available in the well, just  
7 a very low permeable area.

8 Q And the same on the previous page there, on  
9 the Gustafson property?

05:33 10 A Based on the notes says "Ran dry, test last  
11 time 10/17 and 10/17." Yeah, I think it looks like  
12 they went back another couple of days to see if there  
13 was more water in the well and there wasn't so they  
14 collected what was available in the well.

05:33 15 Q Why did your samples -- samplers continue to  
16 collect samples from wells that had so little water  
17 in them that they had to ignore the SAP procedures in  
18 order to get a sample?

19 A Well, we wanted to get a water sample from  
05:33 20 each well. Sometimes the samples aren't perfect and  
21 you collect what you can. Some wells, just the way  
22 they are installed, end up not producing as much  
23 volume of water as others. And if you can get a  
24 sample out of it, it's still a valid sample. But  
05:34 25 that's why we make notes like this to draw attention

1 to the fact that this well in particular, for  
2 example, not producing as much water, say, other  
3 samples that were collected.

4 Q Why don't you look at Exhibit 8 again, and  
05:34 5 look at the site CRA REI 22.

6 A How far in, roughly?

7 Q It's about six from the back physical pages.

8 A Oh. Okay. I'm sorry. Could you say it  
9 again, CRA?

05:34 10 Q Sure. CRA REI 22.

11 A REI. Yeah, I see it, uh-huh.

12 Q Okay. So here the sample was taken even  
13 though the turbidity was off the charts?

14 A I don't know off the charts. I can't answer  
05:35 15 that question, but I can see it was pumped dry and  
16 then they collected it and allowed it to recharge and  
17 then they sampled, so --

18 Q Well, you have some readings in here of  
19 turbidity in the 7- and 800 range, right? If you  
05:35 20 look at the first page of Exhibit 9, there's a  
21 reading there in the 800 range.

22 A Yeah, uh-huh. The initial purge, I see  
23 that, yes.

24 Q Sure.

05:35 25 So that's about three times more turbid than

1 the water in the picture on Exhibit 10, right?

2 A That would be correct, yeah.

3 Q So in this particular sample, CRA REI 22,  
4 that's even more turbid than that, right?

05:35 5 A I don't know.

6 MR. RAUCHWAY: Why don't we take a break. I  
7 only have a very little bit more.

8 THE WITNESS: Okay.

9 THE VIDEOGRAPHER: Going off the record. The  
05:36 10 time now is approximately 5:36 p.m.

11 (Off the record.)

12 THE VIDEOGRAPHER: Going back on the record.  
13 The time now is approximately 5:45 p.m.

14 BY MR. RAUCHWAY:

05:45 15 Q All right. Mr. Kane, I asked you some  
16 questions before about your data summaries for your  
17 background calculations.

18 Can you look at the groundwater data summary  
19 page in your report, please?

05:45 20 A Yes, uh-huh.

21 Q Okay. The table at the bottom of the page  
22 that has the heading "Groundwater Data Summaries," is  
23 that intended to encapsulate the statistical analyses  
24 of the 107 samples that you selected?

05:45 25 A That's correct, yeah.

1 Q And looking at the first row there for  
2 arsenic, the maximum sample is 13.8 parts per  
3 billion?

4 A Uh-huh, yes.

05:46 5 Q So in at least some of these samples that  
6 you use for background, there were concentrations  
7 that were higher than the drinking water standard for  
8 arsenic?

9 A That's right, yeah. Looks like it was.

05:46 10 Q So do you believe that in some areas where  
11 the plaintiffs live, the naturally occurring  
12 background level of arsenic in the groundwater  
13 exceeds the drinking water standard?

14 A I think it's probably like we talked about  
05:46 15 before, an outlier, an anomaly from one well that may  
16 have been higher for some particular reason at the  
17 time of sampling. But again, this is the data that  
18 we got from the state so I don't know exactly what  
19 this sample represents as far as which well or any  
05:46 20 problems with that particular well. So I can't  
21 answer that question. I don't know.

22 Q Can you turn to your -- one of your maps,  
23 and the one I would like to ask you about is the  
24 zero-to-two-inch soil arsenic. This one here.

05:47 25 A Zero to two inch arsenic, June October.



1 Soil, right? Of course.

2 Q Yes.

3 A Yes, uh-huh.

4 Q This is what's commonly referred to as an  
05:47 5 isoconcentration map?

6 A I think that's a good name for it, yeah.

7 Q And I think you said before that you  
8 subcontracted out the work of creating these maps?

9 A I did.

05:47 10 Q Do you have the electronic files for the  
11 creation of these maps?

12 A I believe we do, yeah.

13 Q Have you provided those to your attorneys in  
14 this case?

05:48 15 A I actually am not sure if we actually gave  
16 them the electronic copies that generated these maps,  
17 no.

18 Q Do you have them in your possession or are  
19 they currently with your subcontractors?

05:48 20 A I believe we have them in our possession in  
21 files, yes.

22 Q Do you know what the program is called that  
23 was used to create these maps?

24 A I do, yeah. It was an ArcGIS and as a part  
05:48 25 of an add-on to the GIS software was called IDW,

1       inverse distance weighting.

2           Q     And as I understand it, there is some  
3       parameters in that mapping software that you can  
4       adjust?

05:48 5           A     Uh-huh.

6           Q     Did you direct your subcontractor to make  
7       any of those kinds of adjustments?

8           A     I did. I did tell them to work within the  
9       boundary of around the town of Opportunity where our  
05:49 10      data was collected; otherwise, these maps would just  
11      go off into infinity. And we wanted to get an idea  
12      of within the area of the boundary of where we  
13      collected our samples, that that was a boundary  
14      condition for the samples.

05:49 15          Q     How about specific adjustments related to  
16      the interpolation of data in between your various  
17      data points?

18          A     Well, that's part of the inverse distance  
19      weighting approach. That's the software that's  
05:49 20      common -- one of them that's commonly used for  
21      creating maps like this.

22          Q     In your experience, is that commonly used  
23      for creating soil maps or groundwater maps?

24          A     I've seen it done both for soil and  
05:49 25      groundwater.

1           Q    As I understand it, there are various  
2 algorithms built into the software related to  
3 standardized calculation of dispersion, for example,  
4 of certain contaminants, right?

05:50 5           A    I believe that's correct, yes.

6           Q    But in a situation involving soil, there's  
7 not a dispersion of the constituent throughout the  
8 area where you don't have data, is there?

9           A    Well, the way that this was set up was to do  
05:50 10 a calculation based on the 12 closest locations,  
11 because that is the way that we could come up with a  
12 map that would be relative to certain areas within  
13 Opportunity and also -- well, not Crackerville. I  
14 didn't do it there.

05:50 15           So that was one of the assumptions that was  
16 made, was coming up with each point would be relative  
17 to within the closest 12 samples.

18           Q    And in looking at this particular map,  
19 there's a lot of color variation in the areas where  
05:51 20 you have lots of data points.

21                   Is that a fair generalization?

22           A    Well --

23           Q    If it helps I can give you some examples.

24           A    Just show me what you mean, if you don't  
05:51 25 mind.

1 Q Well, there's a lot more variation here, for  
2 example, than there is down here by the 1420.

3 A That's true, yes. But there's more color  
4 kind of in this area than within just this area,  
05:51 5 that's true.

6 Q And the same with respect to this area and  
7 this area that have a lot of data points as opposed  
8 to, you know, here, for example, much more variation?

9 A Yeah, I would agree with that.

05:51 10 Q Is the reason that there's more color  
11 variation in those areas that I pointed out to you  
12 than in other areas of the map simply a function of  
13 there being more data points?

14 A Well, each one is -- well, yes and no,  
05:52 15 because I think that you got a closer area of the  
16 12 samples that are being evaluated but still each  
17 point is relative to the 12 closest locations. So  
18 even one out here that would be kind of an outlier by  
19 itself, it's being evaluated with the 12 closest  
05:52 20 locations from that point.

21 Q And I think you testified earlier that there  
22 was sometimes variation in the concentrations of  
23 arsenic even within the same property, right?

24 A That's true, yes, uh-huh.

05:52 25 Q And sometimes those variations were

1 substantial, right?

2 A I think that's true, yes.

3 Q So it's fair to say that the more data  
4 points that you had, the more variation would be  
05:52 5 produced on your map?

6 A The more sample points there would be more  
7 variation. Well, depends on what the analytical is.  
8 I mean, there might be some locations where actually  
9 you don't see a large variation in samples. So  
05:53 10 really again it depends on the site specific  
11 conditions.

12 Q Well, certainly for those properties where  
13 there was substantial variation within the same, you  
14 know, property boundaries, if you added that data  
05:53 15 into your map, you would get more variation in color,  
16 right?

17 A Do you mean if I had added, for example,  
18 some of Pioneer's results to my data and see what we  
19 got?

05:53 20 Q Sure.

21 A Yeah, you probably would see more  
22 variations.

23 Q And even if you had taken more samples on  
24 each property yourself, right?

05:53 25 A Yes. I think that might be the case, yeah.

1 Q For example, this large red area that's  
2 1420 --

3 A Uh-huh.

4 Q -- do you believe that everywhere on this  
05:53 5 map within that discrete portion that's red would  
6 test at 1420 parts per million for arsenic?

7 A I don't think that's what that means, but I  
8 see your point in that. But keep in mind, you are  
9 dealing with -- again, it's relating to the other  
05:54 10 samples within its proximity so you are seeing  
11 results of a 158, 200, 218, you know. And also you  
12 can see how it's -- the impact of a 12.1 nearby  
13 creates a contour back towards that sample.

14 So again, it's -- it's a representation. It  
05:54 15 may even be higher than 1420, not necessarily lower,  
16 or it may be lower than 1420. But it's a  
17 representation of the data that we had available to  
18 show that that indeed is a hot spot area or higher  
19 concentration than the surrounding samples.

05:54 20 So, you know, that's that one point. But  
21 when you look at what it means as far as the color,  
22 we took a look at the range of concentration so we  
23 said, well, it looks like, based on our findings,  
24 that, you know, in this area concentrations look like  
05:55 25 they could be greater than 200 part per million

1 represented by the color red.

2 So that's more important than just the  
3 individual numbers necessarily. We're getting a  
4 range of concentrations expected from the algorithm  
05:55 5 being shown on the map in color. So one of these  
6 numbers could be 10,000 part per million but it still  
7 would be red in an area that's greater than 200.

8 MR. RAUCHWAY: Mark, have you got anything?

9 MR. KOVACICH: No.

05:56 10 MR. RAUCHWAY: I'll see you at trial, Mr. Kane.  
11 Thank you.

12 THE WITNESS: Look forward to it, thank you.

13 THE VIDEOGRAPHER: This concludes the deposition  
14 of John Kane. The time now is approximately  
05:56 15 5:57 p.m. This is the end of disk number 4. Going  
16 off the record.

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1 REPORTER'S DEPOSITION TIME LOG:

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3 REPORTER - MARIANNA DONNER

4 DATE - TUESDAY, JULY 30, 2013

5

6 WITNESS - JOHN R. KANE, P.G., L.H.G.

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8	ATTORNEY	ON RECORD	OFF RECORD	TOTAL
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9	RAUCHWAY	9:12 A.M.	10:37 A.M.	1:25
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10		10:50 A.M.	11:20 A.M.	0:30
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11		11:25 A.M.	12:20 P.M.	0:55
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12		1:13 P.M.	2:12 P.M.	0:59
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13		2:25 P.M.	3:38 P.M.	1:13
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14		3:50 P.M.	4:36 P.M.	0:46
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15		4:48 P.M.	5:36 P.M.	0:48
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16		5:45 P.M.	5:57 P.M.	0:12
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I, the undersigned, a Certified Shorthand Reporter of the State of California, do hereby certify:

That the foregoing proceedings were taken before me at the time and place herein set forth; that any witnesses in the foregoing proceedings, prior to testifying, were placed under oath; that a verbatim record of the proceedings was made by me using machine shorthand which was thereafter transcribed under my direction; further, that the foregoing is an accurate transcription thereof.

I further certify that I am neither financially interested in the action nor a relative or employee of any attorney of any of the parties.

IN WITNESS WHEREOF, I have this date subscribed my name.

Dated: \_\_\_\_\_

\_\_\_\_\_  
MARIANNA DONNER, CSR, RPR, CLR  
CSR No. 7504

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